

*Harrel*



# THE ARMED FORCES COMPTROLLER

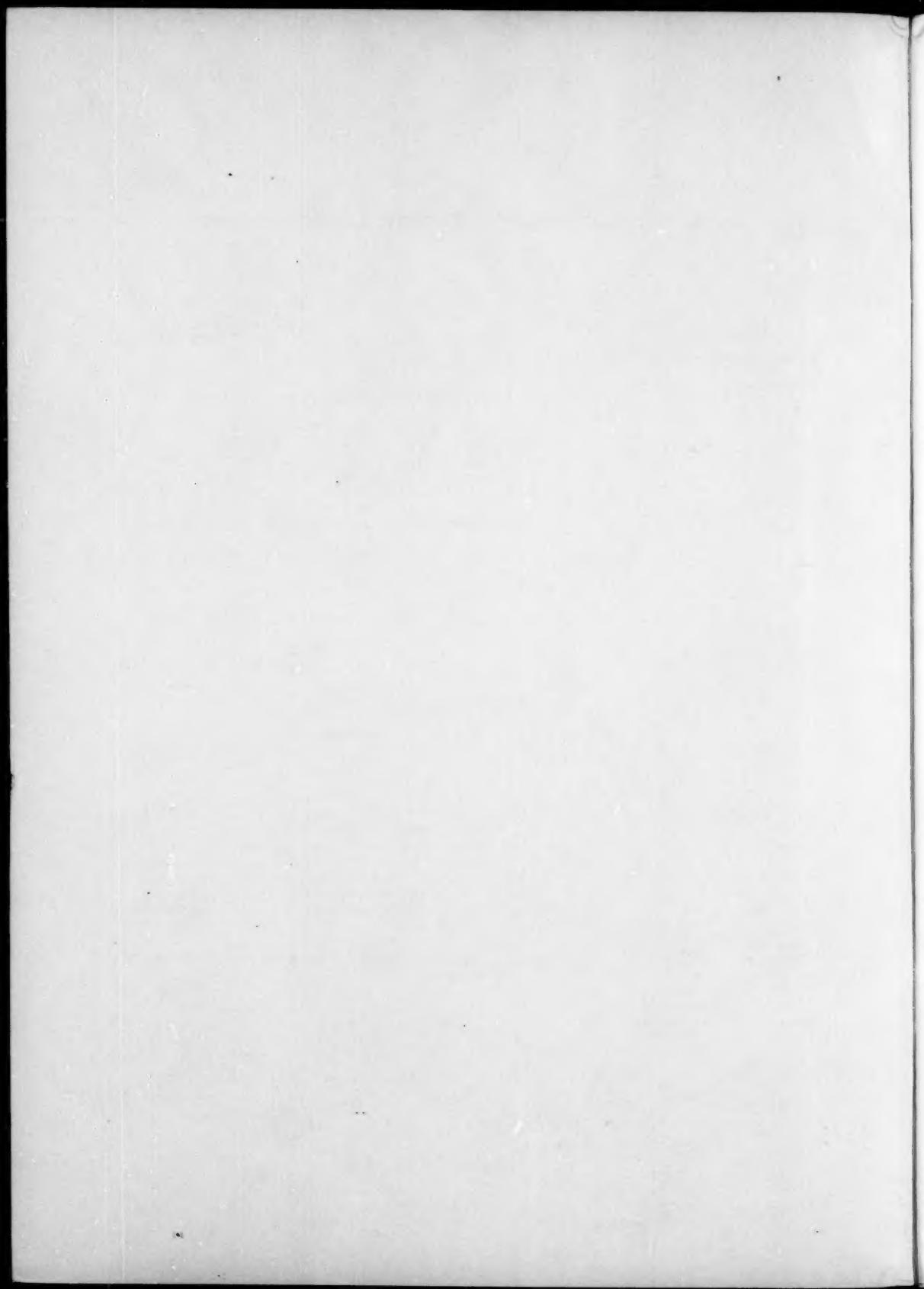


**WASHINGTON, D. C.**

**MARCH 1958**

**VOLUME III**

**NUMBER 1**



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The past decade has been a period of rapid and profitable development in the field of Military Comptrollership. This has resulted in a marked increase of efficiency and economy in handling the business affairs of all the Armed Forces -- Army, Navy, Air Force, Marine Corps, and Coast Guard. With this firm platform, still greater achievements are to be expected in the future.

In the favorable developments of recent years, it is noteworthy that the Chapters of the American Society of Military Comptrollers have grown from three to twenty-four, and your National Council and Chapters throughout the world are stimulating further expansion in Chapters, Membership and Services.

In brief, ASMC, as our Society is called, is a truly National Association representing the Profession of Military Comptrollership. ASMC has done much to establish our Profession on a basis comparable to Controllers in private industry as represented by the Controllers Institute of America. Your active participation will help further the advancement of our Profession.

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Let's keep the Profession of Military Comptrollership going forward.

Sincerely,

WM. S. LAWTON  
Lieut. General, USA  
National President

"The Armed Forces Comptroller" is a forum for the presentation of the activities of Military Comptrollership. The views expressed by the authors of articles herein, therefore, do not necessarily represent the views of the Government Agency, the Armed Forces or the National Council of the American Society of Military Comptrollers.

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AMERICAN SOCIETY OF MILITARY COMPTROLLERS

1958

Washington, D. C.

Yearly Subscription:      Members \$2      Non-Members \$3

Second Class Mail Entry Authorized at Washington, D. C.

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## THE ARMED FORCES COMPTROLLER

Quarterly National Journal

Vol. III                  No. 1  
March 1958

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## REPORT ON THE FIRST NATIONAL CONVENTION OF THE AMERICAN SOCIETY OF MILITARY COMPTROLLERS

*Oscar C. Lightner*

The Constitution of the ASMC calls for an annual convention, but none had been held until last November. The Society had grown in a few years from the nine original founding members to about 1,200 as of the date the National Council decided it was time to have the first convention.

The Washington Chapter was given the job of sponsoring this convention and Mr. John H. Prince, Deputy Comptroller of the Coast Guard and President of the Washington Chapter, ASMC, must be given the credit for having planned and arranged a highly successful program.

The principal speakers were Mr. Morton Rossman, Management Consultant with Peat, Marwick and Mitchell, General Robert O. Cork, who spoke in place of Major General F. A. Bogart, Lieutenant General William S. Lawton, Comptroller of the Army, Mr. T. Jack Gary, Jr., General Partner of Peat, Marwick and Mitchell and Mr. Lawrence J. Powers, Director, Defense Accounting and Auditing, General Accounting Office.

Admiral Edward W. Clexton, the then President of the Society, started off the first day of the convention with the Welcoming address. Admiral Clexton recounted a little of the history of the origination, its membership and its purposes and benefits. In discussing the growth of the Society, Admiral Clexton mentioned as the contributing factors for the growth, First, that the Society is a truly professional association, Second, the Society represents the broad scope of comptroller activities, drawing its interest and membership from all the ramifications of comptrollership functions, Third, the Armed Forces Comptroller Journal which serves as a forum for the presentation of ideas and the exchange of information, and finally the Society fosters a spirit of fellowship among its members. "As for dues," said the Admiral, "try to recall any of the professional associations you belong to with national dues of \$5.00 the first year and \$3.00 thereafter — with a slight surcharge for local chapter operating expenses."

Mr. Norwood P. Cassidy, master of ceremonies for the first day of the convention, introduced the first regular speaker, Mr. Morton Rossman who spoke on the subject of Operations Research. Operations Research is the mathematical approach to the solution of business problems. The Operations Research approach considers six basic steps in solving a business problem. These steps are:

1. Formulate the problem
2. Construct the model
3. Obtain an optimum solution for the model
4. Test the model and optimum solution
5. Set-up controls on the solution
6. Design a procedure for implementing the results of the Operations Research study.

The formulation of the problem is itself divided into three stages. First, the problem situation is analyzed in its setting in the business, then the management problem is stated and lastly the research problem is formulated.

The second basic step is to construct a model for the process in which the research problem occurs. Whenever possible this will be a mathematical model.

The third basic step is to obtain an optimum solution for the model. If step 1 is a mathematical model, then this step involves the straight-forward use of mathematical techniques. If the model is not mathematical, then this step in obtaining a solution will most likely be a very difficult one.

The fourth step is to test the solution to be sure it is valid. Thus, if the problem is one of inventory control, the solution would be tried for a few items before applying to all the items.

The next step is to make sure that the solution continues to be a good one. Changes due to outside influence are constant and unforeseen events will occur, therefore, the efficacy of the solution should be checked continuously.

The last step is to be sure that the solution is actually used and the transition to its use is as smooth as possible.

General R. O. Cork, substituting for General Bogart, delivered an address titled "Current Trends in Air Force Budgeting." The address dealt mainly with the effect of the expenditure limitations on the Air Force budgeting cycle. Starting with background information that the accelerated rates of expenditures, which greatly exceeded estimates, endangered the cash position of the Treasury which could not borrow to meet disbursement requirements because of the debt limitations imposed by Congress, thereby forcing the imposition of expenditure limitations on the Agencies. Heretofore, it was pointed out, the budget process "progressed from plans to programs to budget estimates and then, after appropriations were passed, from commitments to obligations to expenditures. For 1959, in

effect, we have had to take off from the expenditure objectives and then back up to obligations, and finally decide what kind of a program could be supported under such controls."

The address continued, "I must add that the imposition of these pre-determined dollar objectives did not foreclose the express of military requirements as we see them, nor of the associated dollar requirements. We were required, however, to tailor our basic estimates to the target amounts.

"This change in concept, and the timing of it, required that the FY 1959 budget estimates be prepared, essentially, at the headquarters USAF level rather than evolve as a result of Air Staff action on estimates prepared by the several major commands and other estimating agencies. This was necessary because the command estimates were based upon our call for estimates which was issued last January and was based on old program documents, and therefore would have resulted in a total estimate under which expenditures would be far in excess of the targets which had in the meanwhile been prescribed for 1959. Furthermore, the reprogramming made necessary by the expenditure problem in fiscal 1958 also tended to invalidate the command estimates.

"When this change in pitch was made it was much too late to begin again at the start of our customary programming-budgeting cycle, even on a compressed, accelerated basis. The only alternative was to prepare the budget at headquarters, using such parts of the command estimates as remained useable. The staff-prepared budget was checked out with the commands and then processed through our usual review echelons. From time to time we have had to undertake many somewhat comparable budget exercises for the special purposes of various review authorities, but this is the first time that the product of such an exercise has become the official Air Force budget submission.

"It may well turn out that this is but the first effort in a new system of budgeting in the Air Force, new in that the budget estimates will start with predetermined targets, set either by higher authority or by ourselves, and will be a Headquarters - prepared estimate with field participation, rather than a field-prepared estimate with Headquarters participation, review and adjustment.

"It is still too early comprehensively and accurately to evaluate this reverse process, as it were, but we hope to attain a degree of success this year that will warrant our standardizing on the new approach. If we can do so, one highly desirable result should be a shortening of the

budget cycle, something for which we have been striving for a long time. Thus it may develop that, out of the agonies which are being experienced today, there may well evolve methods and procedures which will ease our burdens in future years."

General Lawton's address concerned itself with an outline of the organization and functions of the Office of the Comptroller of the Army. This office was instituted over ten years ago gathering the comptroller functions into "one pair of hands" as expressed by General Lawton, before Title IV of Public Law 216 made the formal assignment to a Comptroller. However, the Army has added the function of management analysis by secretarial delegation in addition to the functions assigned by law.

The General noted that the Comptroller has a dual responsibility by law in that he reports to the Secretary of the Army and concurrently to the Chief of Staff. In this respect he is unique among members of the Army staff. There is a close contact between other Deputy Chiefs of Staff and their corresponding Assistant Secretaries, but it is only the Comptroller whose dual responsibility is formalized by Congress.

The mission of the Comptroller, budgeting, accounting, statistical reporting and management engineering and the constantly improving techniques of management, are handled by an organization below the Comptroller of a Deputy Comptroller and three Assistant Comptrollers. One is the Assistant and of the other two one specializes in the function of foreign financial affairs and the other concerns himself with the program of the office of the Comptroller of the Army and with the review - from the point of view of the Comptroller - of Army Programs and War Mobilization Plans.

There are three small offices reporting directly to the Comptroller, the Financial Management Coordinating Group that specializes on the installation of the Army Command Management System, the Legal Advisor, and the Civilian Personnel Officer whose specialty is the development of career programs for civilian personnel of Comptroller offices.

The five Directors reporting directly to the Comptroller consist of the Director of Accounting, the Director of Army Budget, the Director of Management Analysis, the Director of Progress and Statistical Reporting and the Director of Contract Financing.

Two independent staff agencies, those of the Chief of Finance and the Chief of the Army Audit Agency, operate under my supervision, stated General Lawton.

The address ended with a statement of those fields where the efforts of the Army Comptroller are currently being concentrated. These are the presentation of cost-based budgets to Congress; the reduction of workload in the field, particularly in developing the principle of "reporting by exception," and the development of Comptroller personnel through training and career development programs.

At the dinner meeting Mr. Gary spoke on "Defense Department Accounting, a Three-Way Stretch." The three-way stretch referred to three bases of accounting; cash, obligational and accrual, all of which are required for different purposes. However, the integration of these three bases into a single system of accounts has been successfully accomplished. Certain problems are still unsolved such as the relation of appropriation and allotments to accrued costs, the need of another method of financing other than industrial, stock and shop expense funds, sub-allotment and cross-disbursing accounting and a review of service-wide mandatory cost classifications with a view to making them as summary in nature as possible.

The following day, November 22, Mr. James C. Jenkins, Office of the Assistant Secretary of the Army, introduced Mr. Lawrence J. Powers, Director, Defense Accounting and Auditing of the U. S. General Accounting Office, who spoke on

#### "Plans for Department of Defense Accounting and Auditing."

The business sessions of the Council Members and Chapter Delegates were held the afternoons of the 21st and 22nd. These sessions were concerned with the election of officers for the following year and the passage of various resolutions for improvement of operations and to recognize outstanding leadership in comptrollership by the awarding of appropriate certificates.

Particular attention was focused on the importance of continued publication of the Armed Forces Comptroller Journal on a quarterly basis and the continuation of articles of professional interest. A resolution was passed establishing a quota of one article per quarter from each chapter for the journal.

A resolution was passed establishing all dues of the organization on a fiscal year basis with all dues falling on 1 July hereafter. New members joining between 1 July and 31 December would be assessed a full year's dues, whereas new members joining between 1 January and 1 July would be assessed half of a year's dues.

A resolution was also passed establishing the Certificate of Outstanding Service to the Profession of Military Comptrollership to be awarded by action of the National Council or Convention Delegates on the basis of investigation or recommendation by resolution of a chapter.

## AUDITING IN THE AIR FORCE

*Major General William P. Farnsworth  
Auditor General, Comptroller, USAF*

The purpose of this article is to explain how the Auditor General is organized to perform the auditing mission of the U. S. Air Force.

Auditing in the Air Force is performed at all levels of command by the Auditor General, who is responsible to the Comptroller of the Air Force. Departmental arrangements also provide for direct channels of communication between the Auditor General and the Assistant Secretary of the Air Force (Financial Management).

As a member of the Comptroller staff, the Auditor General is the principal advisor to the Comptroller and to other members of the Air Staff and to the Office of the Secretary of the Air Force on auditing and related matters. In this staff function the Auditor General's activities and operations parallel those of the other Directors on the Air Staff. However, since he is responsible for the performance of auditing in the Air Force, the Auditor General also serves as the head of a world-wide line organization (see charts); in this respect his activities and responsibilities differ from those of other members of the Air Staff.

Approximately 2,500 auditors are stationed at more than 300 operating locations throughout the world. These auditors operate under day-to-day direction of six district headquarters, four in the zone of interior and two overseas. Over-all direction is provided by the Auditor General and his staff at Headquarters USAF. All components of the Auditor General, wherever located, function as field extensions of Headquarters USAF and are responsible to the Comptroller of the Air Force through the Auditor General.

### MISSION AREAS

We have two principle mission areas in the Auditor General — Contract Audits and Internal Audits. Briefly "Contract Audits" refers to audits of commercial enterprises and the furnishing of advisory services to procurement officials in connection with contractual matters. "Internal Audits" refers to the audit of activities and operations occurring within the Air Force. As with the other Comptroller functions, the philosophy behind auditing in the Air Force is that it is operated as an aid to management.

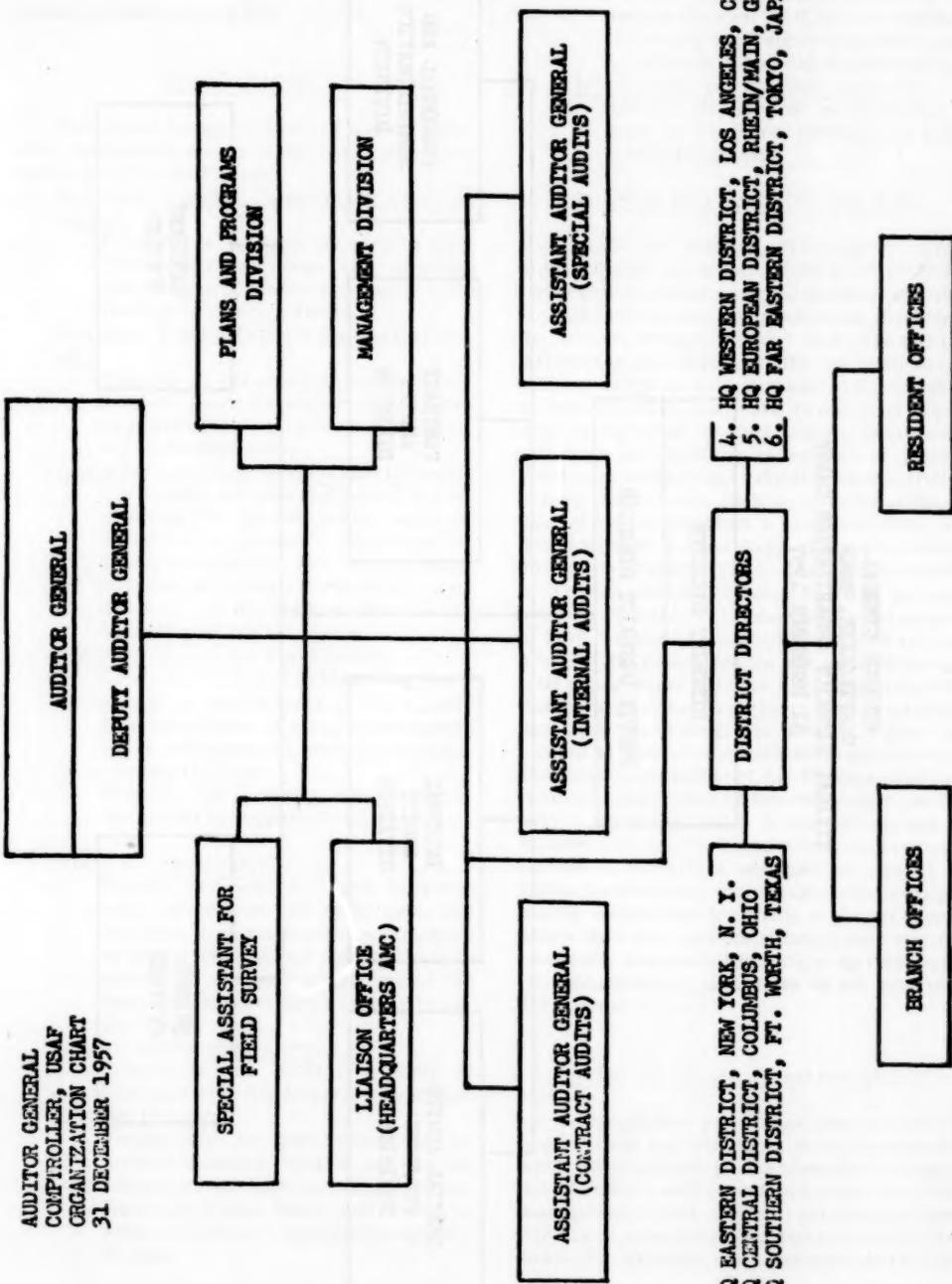
In the contract audit area we assist procurement officials in their efforts to achieve the most economical procurement of goods and services required by the Air Force and in the determination of whether costs submitted by contractors

are appropriate for payment under contract terms. In Fiscal Year 1957, contractor claims, initial proposals, and target price examinations totaled \$13.4 billion. At July 1, 1957, there were about 8,000 contracts on hand with a face amount of \$38.5 billion and with unaudited balances of \$10.2 billion. Roughly 40 per cent of our total audit effort is directed to this area. As of January 1, 1958, we had 92 contract audit field offices located throughout the world.

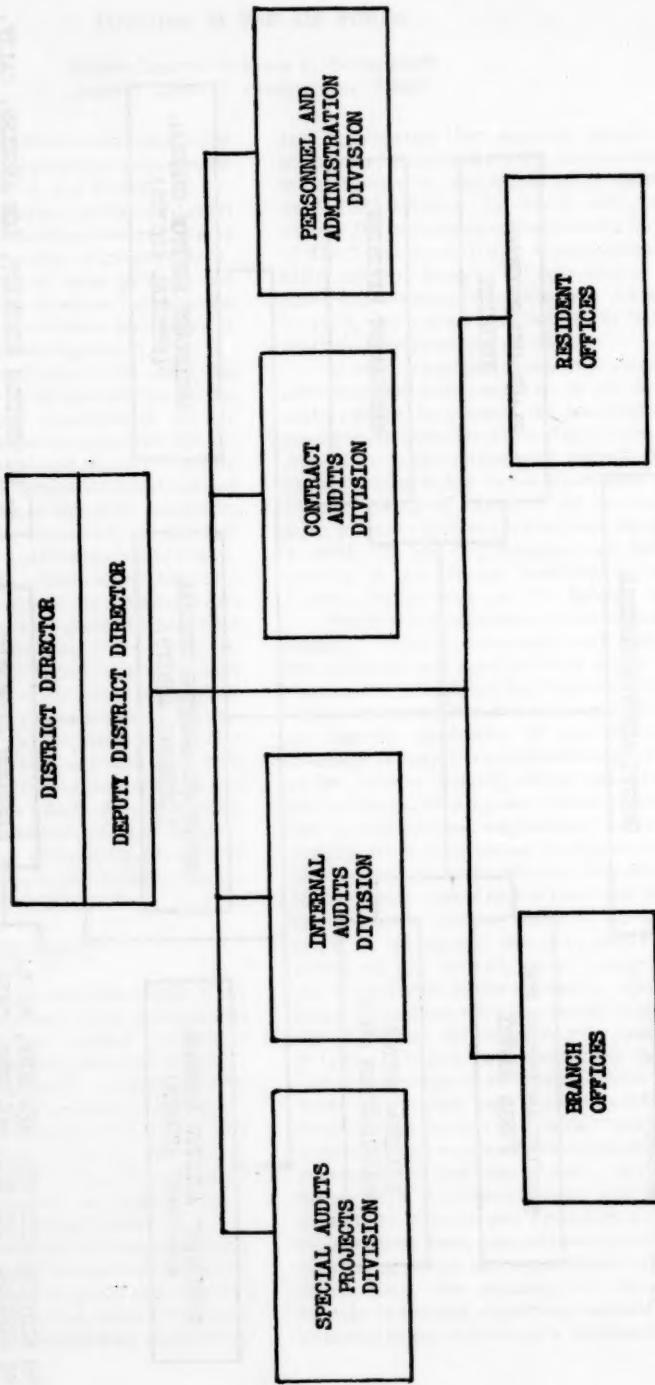
In the internal audit area we assist Air Force commanders and managers at all echelons in their efforts to achieve the most effective and economical administration of activities involving Air Force funds and property. Some 9,000 separate activities at Air Force bases were audited in Fiscal Year 1957. Roughly 60 per cent of our audit effort is directed to this area. As of January 1, 1958, we had 222 internal audit field offices located at Air Force installations within the United States and in 15 foreign countries.

We have a third mission area called "Special Audits," which is concerned with audits in both the contract and internal audit areas. They are "special" in the sense that they are nonrecurring audits or surveys directed at specific financial or logistic problems of special concern to officials at major command and higher levels, or to the Auditor General, which expand the scope of our normal audit program. These audits are similar to management engineering surveys and are usually made in response to requests by Air Staff and Major Command officials who recognize the need for this type of look at their own operations. Each audit is custom made to fit the specific needs of the agency which requests the audit. Initial on-site studies, survey program design, and preparation of the summary report is monitored by headquarters personnel in the Office of Special Audits. However, over the past year some of these studies have been fully delegated to District Headquarters offices, which previously were responsible only for field performance of programmed surveys. Ten per cent of the total audit man hours at branch and resident offices is reserved for this type of audit. During the past three years more than seventy special audit reports have been issued. Among the areas reported upon have been controls and procedures used in pricing spare parts purchased from defense contractors, the accuracy of the Air Force vehicle inventory reporting system, the effectiveness of the Air Force's Hi-ValuSupply Pro-

AUDITOR GENERAL  
COMPTROLLER, USAF  
ORGANIZATION CHART  
31 DECEMBER 1957



AUDITOR GENERAL  
COMPTROLLER, USAF  
TYPICAL DISTRICT ORGANIZATION CHART  
31 DECEMBER 1957



gram, and the effectiveness of procedures governing pricing and reimbursement to the Air Force for deliveries to other countries under the mutual assistance program.

## ORGANIZATION

Functional responsibilities of Auditor General components shown in the charts are summarized briefly as follows:

### Assistant Auditor General for Contract Audits

Formulates policies concerning contract audit functions, and develops operating procedures and instructions relating to contract audits.

### Assistant Auditor General for Internal Audits

Formulates policies concerning internal audit functions, and develops operating procedures and instructions relating to internal audits.

### Assistant Auditor General for Special Audits

Formulates policies and provides staff direction for the conduct of audits or surveys in or related to the field of financial management that are of special interest or concern to major air commanders, the Air Staff, or the Office of Secretary of the Air Force.

### Special Assistant for Field Survey

Conducts surveys of field auditing operations to determine that the Auditor General mission is being accomplished in an efficient and effective manner.

### Management Division

Directs and performs administrative operations in support of auditing activities.

### Plans and Programs Division

Studies and tests new and improved audit procedures and techniques, and develops long-range plans as required to enable the Auditor General to keep abreast of changing requirements for audit and to meet long range audit objectives.

### Liaison Office, Headquarters AMC

Represents the Auditor General at Headquarters, Air Materiel Command.

### District Director

Responsible for performance of the Auditor General mission and for the administration and management of assigned personnel, funds, and resources within the district's assigned geographic area.

### Staff Offices at District Headquarters

Functional responsibilities generally parallel those of related offices of the Auditor General staff, with emphasis on exercising staff supervision over performance at branch and resident offices.

### Branch Chiefs and Resident Auditors

Responsible for the performance of audits at Air Force installations and at contractor plants.

## BRANCH AND RESIDENT OFFICES

Branch and resident offices have a simple organizational structure. Branch office chiefs and resident auditors are the heads of subordinate field offices and are responsible directly to the district director. Under them are auditing technicians and clerical staffs consistent in size with the assigned audit workload. A branch office or resident office may have an assistant branch chief or assistant resident auditor, and its auditors may be classified as seniors or juniors. Where the workload at an installation is sufficient to keep two or more auditors busy full-time, we usually try to establish a resident office. The designation of a field audit office as a branch office or a resident office is primarily a matter of the size, nature, and disposition of its workload. In the case of Contract Audits, at January 1, 1958, we had 24 branch offices and 68 resident offices. The branch offices are located in industrial areas where there is a concentration of Air Force procurement contracts scattered among numerous companies; the resident offices are located at plants of contractors doing a large and continuing volume of Air Force and defense business. In the case of Internal Audits, at January 1, 1958, we had 6 branch offices and 216 resident offices. The branch offices are centrally located to perform a workload at several Air Force installations; the resident offices are primarily responsible for audits at the air bases at which they are located, although they also may have audit responsibility for one or more satellite installations, such as an AC&W site, or an ROTC unit.

## AUDIT AS AN AID TO MANAGEMENT

Although this article has dealt mainly with organization and functions, it is appropriate to add a word regarding our philosophy that audit is not an end in itself but exists to serve Air Force management in its efforts to get the most out of Air Force resources. Our auditors at Air Force bases, for example, are instructed that they are

not there for the purpose of "gigging" management. Rather, auditors are instructed to bring audit findings to the attention of responsible personnel during the course of the audit so as to permit corrective action as soon as deficiencies are brought to light. They also are permitted to omit from the report of audit those items which management has been able to correct before the audit report is issued. In other words, reports forwarded to higher headquarters normally contain only those items which require follow-up or corrective action. In addition, auditors are instructed to confine audit reports to matters of fact as opposed to matters of opinion. When a management decision, not in contravention of statute or regulation, has been based upon judgment and

evaluation of the facts, it serves no useful purpose for the auditor to second guess the decision which management has made. Also in the interest of providing constructive service, we provide specific recommendations for corrective action whenever such recommendations are appropriate. The cumulative effect of this approach to auditing has been to engender command acceptance of audit as an integral factor in the financial management structure. It has resulted in many requests at all echelons for audit survey in areas which are not included in our normal audit program but which are of special concern to individual commanders and staff officials and which they feel would benefit from examination by audit personnel.

## BUDGETING FOR THE ARMY MEDICAL SERVICE

*Nephthine Fogelberg  
Comptroller, Office of The Surgeon General  
Department of Army*

Budgeting is a process of merchandising dollars.

Hospitals, dispensaries and clinics represent the consumer of dollars in this merchandising chain. Like all consumers medical treatment facilities are primarily concerned with doing a good job, namely, providing the best possible care for their patients. Economy in providing this care is of secondary importance and rightly so.

The taxpayer, through the Congress of the United States and the Bureau of the Budget, represents the supplier of dollars. Like the manufacturer of biologicals who desires the highest price for his products, the supplier of dollars is primarily concerned with obtaining the maximum value for each dollar relinquished.

The comptroller at each echelon of the Army Medical Service represents the jobber in this merchandising chain of dollars. The comptroller is rightfully sparked by the desires of the consumer and properly rebuffed by the demands of the supplier. His primary concern is to keep these two opposing forces in balance. Success in achieving this balance depends largely upon a full appreciation of both points of view and the degree to which he can bring about a mutual understanding of the problems of the consumer and supplier of dollars.

The development of a budget always reminds me of a jigsaw puzzle because of the fixed relationship of the component elements of a budget. The estimate of funds must reflect the proper pricing of the men and materials required to do a given job. The men and materials, in turn, must reflect an efficient operation when compared with the work to be done. The work to be done, in turn, must be generated by a requirement necessitating the expenditure of Federal funds. In developing a budget the three steps are involved but the sequence is reversed. Let's examine the three steps more closely as they apply to the Army Medical Service.

### PUBLIC RESPONSIBILITY

Why does the Army operate a medical service at the expense of the taxpayer? The Army Surgeon General has answered this question as follows:

"There are two reasons, each of them strong enough to stand alone. The first is philosophical or humanitarian. Civilized man has come to look upon the preservation of health as a basic right. The dignity and work of the individual human being is a concept inherent in the American way of life; it is an aspect of the culture which the United States Army fights to defend. The citizenry from which our soldiers are drawn demands for its members ready access to good medical care regardless of station or rank, economic status or pay grade.

"The second reason is downright practical, almost mercenary. The medical salvage of manpower is a paying proposition. In six or eight weeks a man with an uncomplicated abdominal wound can be back at full military duty. If there was a certainty that the next war would be finished - and won - in three or four weeks at the most, then the man with the abdominal wound would simply be salvaged for return to the national manpower pool. But if that future war lasts for several months or longer, then his case is of immediate personal interest to the Army commander.

"For this individual represents the salvage of an item of the scarcest military commodity, the one which is truly indispensable to the prosecution of war. It takes 19 years to produce a soldier. No other weapon of war has a comparable lead time. In dire circumstances, comforts can be curtailed and humanitarianism can be deferred. But it is the same dire circumstances which place the greatest demands on manpower. Under such circumstances, a few more men may spell the difference between Win and Lose."

Under these circumstances it is easy to understand why the Congress of the United States recognizes the primary mission of the Army Medical Service to conserve and improve effectiveness of military manpower and to maintain and improve the health of the Army as warranting the expenditure of Federal funds.

The recognition of a mission and the conversion of this mission into estimates of workload are two entirely different things. It is the latter

that brings in the "hard cash." The Army Medical Service is unique compared with other types of activities when it comes to converting mission into workload. Programs concerned with hard goods can convert specific objectives into end items and can support the need for these specific end items in terms of the objectives to be obtained. For example, the Chief of Ordnance knows the number of different kinds of tanks the Army must have for a certain degree of preparedness. Whether the Army obtains this required number of tanks depends largely on whether the national economy can afford these tanks or whether some other type of weapon should have higher priority. Likewise, the Quartermaster General can accurately forecast the quantity of clothing required to properly clothe an Army of a specified size and composition. It is not to be implied that the Chief of Ordnance and the Quartermaster General do not have budgetary headaches because they undoubtedly do. They are, however, dealing with tangibles which lend themselves to exact calculations. This is not true of the Army Medical Service. The Army Medical Service is concerned with a large number of individuals who are subject to a variety of diseases, injuries, and malfunctioning of human organs. The medical workload depends upon the effectiveness of preventive medicine programs, the number of these individuals who become sick or injured and the nature of their sickness or injury. The number that might become sick or injured varies with location and with the physical fitness of the individual when he is taken into the service. These are intangible factors, not subject to exact calculations.

There is another important difference between budgeting for the Army Medical Service and other services of the Department of the Army. If higher authority does not provide the Chief of Ordnance with sufficient funds to purchase the number of tanks required, the Chief of Ordnance purchases only those tanks which he can afford. As a result, preparedness may be jeopardized but the actual testing of the decision made may never materialize. In the case of the Army Medical Service, individuals are going to get sick and be injured without reference to whether they were included in the estimate of medical workload to be handled by the Army Medical Service. Furthermore, if they become sick and injured and were not provided for in the estimates they will still be provided care. As a result, estimates of medical workload do not represent a plan of action but rather an attempt to forecast a plan of action that will take place.

In an attempt to estimate medical workload as accurately as possible, comprehensive tables are developed for inpatient care, outpatient

medical care and dental care. These medical workload tables are built up from an individual post level. Carefully prepared estimates, however, can be easily upset by such things as the Asian Flu outbreak. Estimates of workload are further complicated by the fact that approximately one-third of the total funds required to operate the Army Medical Service represents reimbursements. As much care must be exercised in estimating the reimbursable workload as the nonreimbursable workload because the nature of both are the same.

#### EFFICIENCY

The second major step in the development of a budget is proving that the men and materials requested for a given job reflect an efficient operation when compared with the work to be done. The Army Medical Service is also unique within the Department of the Army in hurdling this step in budgetary development. The Army Medical Service is the only service within the Department of Army which has counterparts outside the Department of Army which can be used as standards with which to measure the operations of the Army Medical Service. There are approximately 25 Federal Departments, Agencies and Commissions operating medical programs which cost the taxpayers approximately \$2.5 billion per year. Because of the magnitude of this Federal medical program, a special organizational element exists within the Bureau of the Budget, the members of which devote their full time to carrying out the responsibilities of the Director of the Bureau of the Budget in the Federal Medical field. This means that the Army Medical Service must not only prove that it is efficient in its own right, but that it is also efficient in comparison with other Federal medical activities. This competition for efficiency expresses itself in the form of staffing ratios, subsistence rates, costs, hospitalization rates and in any other factor that can be compared.

Since the enactment of the Dependents' Medical Care Program, the Army Medical Service is subject to more frequent comparisons with costs of obtaining civilian medical care. The Dependents' Medical Care Act, PL 569 (84th Congress) provides specified medical and adjunctive dental care from civilian sources to be furnished at Government expense to spouses and children of members of the Army, Navy, Marine Corps, Air Force, Coast Guard, the Commissioned Corps of the Public Health Service, and the Commissioned Corps of the Coast and Geodetic Survey who are serving on active duty or active duty for training pursuant to a call or order that does not

specify a period of 30 days or less. The Surgeon General of the Army is the Executive Agent for this program.

#### ECONOMY

The third major step in the development of a budget is proving that the estimate of funds reflects the proper pricing of the men and materials required to do a given job. The Army Medical Service handles this phase of budgetary development in much the same manner as any other program within the Department of the Army. Since civilian personal services represent a substantial portion of the budget for the Army Medical Service, special care is exercised in pricing civilian personal services. For example, daily average salary rates for the latest four month period are used as a basis for projecting the cost of civilian utilization in terms of projects, subprojects, and other related subdivisions incident to the preparation of budgetary estimates. Also estimates of nightwork differential, overtime pay and terminal leave pay are handled separately.

#### CONCLUSIONS

Budgeting for the Army Medical Service is subject to the same fundamental principles of budgeting and the same general procedures as budgeting for any other service. Aside from this, budgeting for the Army Medical Service has peculiarities not normally found in other types of

services due to the nature of medical program. These peculiarities raise the question as to how much value is gained from comparing actual operations against planned operations since any deviation between the two sets of figures is not due to carrying out plans, but rather is a reflection on an estimator's ability to look into the future and foretell coming events accurately. Because of these peculiarities, the Army Medical Service is vitally concerned with the budgetary process since the final product, in a sense, represents the blood of the service. If the product is anemic, unnecessary difficulties may be experienced in attempting to carry out the basic mission of the Army Medical Service. For this reason the following are constantly brought to the attention of commanders and other responsible personnel of the Army Medical Service:

1. An insistence upon good, complete and accurate reporting in those basic areas affecting funds;
2. Financially planning operations so that any one month can stand on its own feet;
3. The fact that a budget is not a sponge since the normal characteristic of an approved budget is to repel new demands rather than to absorb them; and
4. The realization that once a hard fought dollar is obtained for a real need it is desirable to recognize that this dollar has wings since procrastination in getting an approved required program under way, once the resources have been made available, may result in losing the resources.

## GOVERNMENT ACCOUNTING RELATIONSHIPS

*E. E. Naylor*

A knowledge of the functional relationships between the Bureau of the Budget, the Treasury Department, the General Accounting Office, the Department of Justice, the General Services Administration, the President, the Congress, the executive departments and the administrative agencies is necessary in order that there be an adequate understanding of the accounting system of the Federal Government.

Let us now give consideration to the functions of the agencies listed above and see how they influence the operation of a Federal Department.

**1. BUREAU OF THE BUDGET.** The functions of the Bureau of the Budget, which was created by the Act of June 10, 1921, (P.L. 13, (42 Stat 20) as amended) are as follows:

- a. To assist the President in the preparation of the budget and the formulation of the fiscal program of the Government.
- b. To supervise and control the administration of the budget.
- c. To conduct research in the development of improved plans of administrative management, and to advise the executive departments and agencies of the Government with respect to improved administrative organization and practice.
- d. To aid the President to bring about more efficient and economical conduct of the Government service.
- e. To assist the President by clearing and coordinating departmental advice on proposed legislation and by making recommendations as to Presidential action on legislative enactments, in accordance with past practices.
- f. To assist in the consideration and clearance and, where necessary, in the preparation of proposed Executive orders and proclamations, in accordance with the provisions of Executive Order No. 7298 of February 18, 1936 (now Executive Order No. 10006 of October 9, 1948).
- g. To plan and promote the improvement, development, and coordination of Federal and other statistical services.
- h. To keep the President informed of the progress of activities by agencies of the Government with respect to work proposed, work actually initiated, and work completed, together with the relative timing of work between the several agencies of the Government, all to the end that the work programs of the several agencies of the executive branch of the Government may be co-

ordinated and that the monies appropriated by the Congress may be expended in the most economical manner possible with the least possible overlapping and duplication of effort.

### 2. TREASURY DEPARTMENT.

a. Office of the Secretary of the Treasury. Certain functions and duties of the Secretary of the Treasury were imposed upon that officer by the Act of September 2, 1789 (1 Stat 65; 5 U.S.C. 241). Some of these functions and duties have remained intact throughout the years, others have been eliminated or transferred, whereas certain additional duties and functions have been placed upon this officer.

- (1) Duties and Functions Since 1789. Among the duties and functions which have remained with the Secretary of the Treasury since the original act of 1789 are the following:
  - (a) The preparation of plans for the improvement and management of the revenue and support of the public credit.
  - (b) The Superintending of the collection of the revenue for the Federal Government.
  - (c) The issuance, subject to the limitations of the amended act, of all warrants for the withdrawal of money from, or the covering of money into the Treasury.
  - (d) The making of reports at the request of either of the Houses of Congress relative to the work of the Department.
  - (e) The performance of such other services relating to the public finances as he may be called upon to perform.
- (2) Additional Duties and Functions. In the expansion of the Treasury Department throughout the years, some of the new and more important functions and duties which have been placed upon the Secretary of the Treasury are:
  - (a) The supervision of the coinage and printing of money,
  - (b) The chartering and the examination of national banks,
  - (c) The administration of the Coast Guard, the Bureau of Narcotics and the Secret Service,

- (d) The purchase, custody and distribution of materials and supplies for the Federal Government,
  - (e) The examination of surety companies which furnish bonds for Federal employees, and
  - (f) The custody of surety bonds.
- (NOTE: See Reorganization Plan III dated April 2, 1940, 53 Stat. 561; 5 U.S.C. 133-133r. See also Joint Resolution approved June 4, 1940, 54 Stat. 231; 5 U.S.C. 133u.)

b. Treasurer of the United States. The Office of Treasurer was provided by the organic act of September 2, 1789. All transactions relating to moneys deposited in the Treasury or authorized depositories of the United States are under the direct supervision of the Treasurer of the United States. According to present practice he receives all moneys scheduled for deposit by accountable officers, and pays Government checks, interest coupons, and settlement warrants presented to him for payment. The Treasurer of the United States serves as fiscal agent for the issue, exchange and redemption of the United States currency, payment of principal and interest on the public debt of the United States and insular governments, and redemption of national bank notes, Federal Reserve notes, and Federal Reserve Bank notes. The Office of the Treasurer maintains the Treasury general ledger accounts of the general funds, special funds, and trust funds, and the checking and depository accounts reflecting transactions of Government disbursing officers, involving the funds advanced to them for disbursement.

In this office also are prepared, among other things: (1) the daily Treasury statement, (2) monthly preliminary statement of public debt, and (3) monthly statement of classified expenditures of the Government. The Treasurer's records of cash received, disbursed, and on hand are subject to control through accounts maintained by the Commissioner of Accounts. All public moneys are accounted for by him to the General Accounting Office.

c. Fiscal Service. The Fiscal Service of the Treasury Department was created by the President's Reorganization Plan III, dated April 2, 1940, under the provisions of the Reorganization Act of 1939 (53 Stat. 561-566; 5 U.S.C. 133-133r). The Fiscal Service consists of the Office of the Fiscal Assistant Secretary, the Bureau of Accounts and the Divisions hereafter discussed, and the Office of the Treasurer.

- (1) Office of the Fiscal Assistant Secretary. The Fiscal Assistant Secretary

supervises functions pertaining to fiscal activities and accounting functions in the Treasury Department. The Fiscal Assistant Secretary maintains contacts and liaison with other departments of the Government with respect to their financial operations. He also prepares periodic estimates of the future cash position of the Treasury for use of the Department in connection with its financing, and directs fiscal agency functions in general.

(2) Bureau of Accounts. The Bureau of Accounts consists of the office of the Commissioner of Accounts and the following operating Divisions with which we have relations in a typical Department, — the Divisions of Internal Audit, Central Accounts, Central Reports, and Disbursement. Treasury Department Order 164, dated Dec. 12, 1952, placed in the Bureau of Accounts the functions of maintaining the central accounts and the preparation of financial reports for the information of the President. These functions are set forth in sections 113a and 114a of the Budget and Accounting Procedures Act of September 12, 1950 (64 Stat. 832).

(a) Accounting Procedures. The Treasury Department's responsibility under section 111 of the Act of 1950 is carried out by the Accounting System Division.

(b) Central Accounting. Under the Dockery Act of 1894 (28 Stat. 208, 210; 5 U.S.C. 255), and section 114 of the Budget and Accounting Procedures Act of 1950 (64 Stat. 832), the Bureau maintains for the Federal Government a unified system of central accounting, which is integrated with the accounts of the Treasurer of the United States and the various Departments and Government agencies.

(c) Central Reporting. The Division of Central Reports plans, compiles, and prepares periodic and special reports showing the results of financial operations of the Federal Government such as the "Combined Statement of Receipts, Expenditures, and Balances of the United States Gov-

ernment" required by the act of July 31, 1894 (28 Stat. 210; 5 U.S.C. 264) and the report of the Secretary of the Treasury on the state of the finances required by the act of May 10, 1800 (2 Stat. 79; 5 U.S.C. 262).

- (d) Central Disbursing. The Division of Disbursement was created by Executive Order 6166 dated June 10, 1933. Today it disburses all moneys of the executive branch of the United States Government (with certain exceptions, as follows: the military services of the Departments of the Army, the Navy, and the Air Force, et al.). (See Executive Order 6728 dated May 29, 1934 and Public Law 389 dated December 29, 1941). This Division receives and processes applications for substitutes of lost, stolen, destroyed, or mutilated checks drawn by officers and agents of the Federal Government, et al.

**3. THE GENERAL ACCOUNTING OFFICE.** One of the shortcomings of the General Accounting Office in operation under the Act of June 10, 1924 was the failure of the departments to recognize the value that the General Accounting Office could have been to them in the establishment of better departmental systems of accounts. On the other hand, the failure of the General Accounting Office to work out with the departments a spirit of cooperation might likewise have been a factor in the failure of the development of an integrated system of accounting for the Government many years earlier than such undertaking was started.

The most important accounting statute designed to bring about a full disclosure of results of financial operations and adequate financial information needed in the management of the departments was set forth in Public Law 784 approved September 10, 1950. Though the Congress had never failed in legislatively directing actions which brought about day-to-day accounting operations in the department, it was Part 2 of Public Law 784 that was intended to set forth the responsibilities of Government agencies which had accounting responsibility. To that end, Section 113 of Public Law 784 provided:

"SEC. 113. (a) The head of each executive agency shall establish and maintain systems of accounting and internal control designed to provide --

"(1) full disclosure of the financial results of the agency's activities;

"(2) adequate financial information needed for the agency's management purposes;

"(3) effective control over and accountability for all funds, property, and other assets for which the agency is responsible, including appropriate internal audit;

"(4) reliable accounting results to serve as the basis for preparation and support of the agency's budget requests, for controlling the execution of its budget, and for providing financial information required by the Bureau of the Budget under Section 213 of the Budget and Accounting Act, 1921 (42 Stat. 23);

"(5) suitable integration of the accounting of the agency with the accounting of the Treasury Department in connection with the central accounting and reporting responsibilities imposed on the Secretary of the Treasury by section 114 of this part.

"(b) The accounting systems of executive agencies shall conform to the principles, standards, and related requirements prescribed by the Comptroller General pursuant to section 112(a) of this part.

In order that the responsibility of the Treasury might be further clarified and recognized, Congress provided in Section 114 that the Secretary of the Treasury was to prepare such reports as would present the results of the financial operations of the Government to establish the facilities necessary to produce financial reports, and he was authorized to reorganize the accounting functions and install revised accounting procedures and financial reports to develop an effective and coordinative system of accounting and financial reporting.

The responsibility of the Comptroller General is set forth in Section 112, which provides:

"SEC. 112. (a) The Comptroller General of the United States, after consulting the Secretary of the Treasury and the Director of the Bureau of the Budget concerning their accounting, financial reporting, and budgetary needs, and considering the needs of the other executive agencies, shall prescribe the principles, standards, and related requirements for accounting to be observed by each executive agency, including requirements for suitable integration between the accounting processes of each executive agency and the accounting of the Treasury Department. Requirements prescribed by the Comptroller General shall be designed to permit the executive agencies to carry

out their responsibilities under section 113 of this part, while providing a basis for integrated accounting for the Government, full disclosure of the results of the financial operations of each executive agency and the Government as a whole, and financial information and control necessary to enable the Congress and the President to discharge their respective responsibilities. The Comptroller General shall continue to exercise the authority vested in him by section 205(b) of the Federal Property and Administrative Services Act of 1949 (63 Stat. 389) and, to the extent he deems necessary, the authority vested in him by section 309 of the Budget and Accounting Act, 1921 (42 Stat. 25). Any such exercise of authority shall be consistent with the provisions of this section.

"(b) The General Accounting Office shall cooperate with the executive agencies in the development of their accounting systems, including the Treasury Department, in the development and establishment of the system of central accounting and reporting required by section 114 of this part. Such accounting systems shall be approved by the Comptroller General when deemed by him to be adequate and in conformity with the principles, standards, and related requirements prescribed by him.

"(c) The General Accounting Office shall from time to time review the accounting systems of the executive agencies. The results of such reviews shall be available to the heads of the executive agencies concerned, to the Secretary of the Treasury, and to the Director of the Bureau of the Budget, and the Comptroller General shall make such reports thereon to the Congress as he deems proper."

Space will not permit a detailed analysis of the improvements that have been made in Government accounting under this more recent statute. Let us conclude by pointing out that this could well be considered even a more important statute than the Act of 1921, but if it is not the more important of the two, certainly it gives the "green light" to the departments, the Treasury Department, the Bureau of the Budget, and the Comptroller General, to bringing about the best system possible in the light of the tremendous responsibility of all in the exercising of their duties as required by law.

4. DEPARTMENT OF JUSTICE. The chief functions of the Department of Justice are to provide means for the enforcement of the Federal laws, to furnish legal counsel in Federal cases, and to construe the laws under which other de-

partments act. Through its Attorney General and his assistants, the Department of Justice defends the Government in legal matters. The Attorney General renders legal opinions, upon request, to the heads of the executive departments. The Department has supervision of all matters relating to civil suits and claims, not otherwise assigned, involving the United States and its officers, agents, and employees, which include but are not limited to the following:

- a. Defense of all suits in the United States Court of Claims (except lands and tax cases) arising out of procurement and construction contracts, war-contract terminations, salary, pay and allowance claims of civilian and military personnel, requisition of property, and cases arising under special acts of Congress, the general statutes, and the Constitution;
- b. Civil claims arising from fraud;
- c. Defense of litigation in connection with Federal Tort Claims;
- d. Suits and claims by and against the United States in the appropriate court;
- e. The compromise of claims where the United States is involved as debtor or creditor.

5. GENERAL SERVICES ADMINISTRATION. The principal duties of the General Services Administration for the present discussion is the assigning, regulating, or performing for executive agencies of the functions pertaining to (a) procurement, supply, and maintenance of real and personal property; (b) the promotion of utilization of excess property; (c) disposal of domestic surplus property; and (d) promotion of sound records management.

6. EXECUTIVE OFFICE OF THE PRESIDENT. The President (a) submits to Congress the budget which represents his financial program; (b) submits tax legislation to Congress for the production of revenue; (c) holds the veto power over all legislation; (d) makes appointments of many executive officers; and (e) as Chief Executive, sees that the laws are faithfully executed, and reports on the State of the Union.

7. THE CONGRESS. The Congress maintains its influence through granting or refusing to grant appropriations, and through its ability to place restrictions on the use of appropriated funds.

8. EXECUTIVE DEPARTMENTS AND ADMINISTRATIVE AGENCIES. The executive departments and numerous administrative agencies have been established to perform certain official responsibilities placed by law directly upon them and to assist the President in fulfilling his executive functions. Generally speaking, an executive department or administrative agency is quite dependent on the various controlling agencies mentioned above. It must request from the Bureau of

the Budget, the President and the Congress, its appropriations. It must deal with the Treasury Department in order to have appropriated funds made available to it for obligations. It is dependent upon the disbursing officer for the payment of vouchers and certificates of settlement when presented for payment. It must depend on the General Accounting Office for the post audit of expenditures. It is dependent upon the Department of Justice in connection with the defense or prosecution of claims affecting it and for defending its official acts against suits.

I have gone to considerable length in spelling out the interests of other statutory activities which are charged with certain responsibilities in the obtaining, controlling the use of, audit of, and accounting for, public funds. Frequently the question arises as to why these activities have to exist and why they have been established by the Congress to perform certain actions which act as limitations upon the freedom of the department in carrying out its mission. When Congress establishes a department or activity, it usually does so by an organic act or basic law. Generally also Congress has given the maximum authority which it feels should be granted to the head of that department or activity. Yet over a period of years,

Congress has felt the need of certain additional controls being placed upon departmental activities. A study of the history of each act that has been discussed in this paper and the extent to which there is a control upon departmental action will reveal that Congress generally has acted wisely in bringing into existence these outside relationships.

As stated in the opening paragraph of this paper, a knowledge of those functional relationships is absolutely necessary in order that there be an adequate understanding of the accounting system of the Federal Government today. As the departments develop more fully their accounting systems, systems which generally, in the past, have not been well developed, there is an increasing need of this understanding of relationships. It might well be pointed out that as we develop our own accounting systems in each department, we need the assistance of these experienced agencies with which we must deal, and the controls exercised by them over our actions are not bothersome to our administration as compared to the value of them in helping us to develop a proper control over the Federal funds which Congress gives us.

## NAVY MANAGEMENT AND ELECTRONIC COMPUTERS: ECONOMY THROUGH EFFECTIVENESS

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Today most management officials profess to espouse economy, efficiency, and effectiveness as the three equal (and often implicitly synonymous) indices of management proficiency. However, in actual practice these managers usually only subscribe to the dictates of the golden calf of "economy." This is probably all well and good in the case of private enterprise which is essentially motivated by the expectancy of financial profit. However, it is usually conceded that the scope, complexity, and objectives of Department of Defense endeavors are unique. It naturally follows that the management problems arising from such unparalleled responsibilities completely dwarf those encountered by even our largest industrial corporations.

In much the same way it will be suggested here the Navy management problems are considerably more complex and diverse than those confronting the sister military services. This assertion is partially derived from the fact that fighting ships represent the largest and most complex implement of warfare yet in existence. A modern warship may be likened to a fortified and mobile industrial city; complete with hotel services and an airport facility. The logistical implications of this fact are tremendous. Moreover, the Navy has long had within itself a "navy," an "army," and an "air force;" thus, the management problems of all.

In this perspective it is not too surprising that the Navy, perhaps more than any other member of the national defense team, is most acutely aware of the hopeless inadequacy of conventional business fiscal devices as the master control or primary index of proficiency in defense business/logistics management. Economy may well be as noble and laudable as motherhood, considered in itself; but it is no more desirable or admirable as "the objective" in the defense establishment than motherhood would be in a convent of nuns.

Much the same thing can be said regarding efficiency to the extent that it is commonly recognized as a legitimate objective of the management process. Actually, pursuit of efficiency *per se* is perhaps the most futile of all possible management objectives. After all, you can only determine the efficiency of completed operations. Efficiency simply has no meaning with respect to objectives or plans or other

attributes of actions before they happen. An operation can only be deemed successful or unsuccessful when it is finished. When you're dealing in national survival you want to know before you start that an operation will be efficient, indeed, one hundred percent efficient. Certainly there is little point in coming out a close second in the event of an all-out war.

Notwithstanding all the foregoing, everyone today (from the man in Congress to the man on the corner) is evidencing increasing concern about the apparent lack of efficiency, and even more especially the lack of economy, in DOD management. Our thesis is, however, that "effectiveness" is (or ought to be) the primary criterion of defense management. After all, the most economical Navy would be no Navy at all. The most efficient Navy would be the Navy that just won yesterday's war. But the most effective Navy would be the Navy that is ready — always ready — for the potential war of today and tomorrow. Most certainly we want the most effective Navy. Whatever else may be said for the yardsticks of economy and efficiency, they are not valid or adequate before-the-fact "controls." Furthermore, as will be emphasized later, efficiency and economy will always materialize as by-products of improved effectiveness; but the converse will never necessarily be true.

In recent years a succession of congressional leaders and special commissions has decried the gross inadequacies of our national defense management. In recent months a succession of Russian scientific achievements has spotlighted these shortcomings once again. While the latter events have evoked unprecedented contradiction and confusion, they have prompted the customary solution — accelerated spending in the lagging areas. The primary reason for this is that defense management lacks a scientific rationale for pre-determining (i.e. - planning) an optimal distribution and effective application of effort on the manifold defense programs in terms of the really basic national resources.

Essentially, the Navy exists as one of several government agencies whose prime purpose within a designated sphere of military operations is to ensure national security and thereby promote international peace. The fundamental objective of all Navy effort, therefore, is to provide the optimum assigned military

capability commensurate with allowable expenditures of basic national resources. These basic national resources are manpower, material (which term includes facilities), and minutes. Expenditures of these basic resources are usually translated into terms of money, which customarily serves in peacetime as the ultimate control governing all national defense effort. However, time, material, and manpower are in themselves no less critical items in wartime than are the limited supporting dollars in peacetime.

In time of war we perform deal in terms of basic resources. Even in peacetime an occasional crisis diverts our attention, if only fleetingly, to the basic resources. This is only natural as regards the military organization, and not merely because it usually represents the major drain on these resources; but also, because in the military organization more than anywhere else "time is truly of the essence." This should be self-evident on the basis of even a casual consideration of the vital implications of being "first" — first with the A-bomb, first with the H-bomb, first with nuclear submarines, first with ICBM's, and first with a manned earth satellite.

Recent events only serve to dramatize the potentially fatal consequences of management's difficulty in trying to properly or adequately develop and evaluate defense programs in terms of the basic national resources. They should also suffice to indict the prevailing management climate wherein the "Dollar" serves as the primary barometer and the irretrievable "time element" in defense operations is discounted and sometimes ignored. In short, it's time that government recognized the short-comings in relying on the fiscal strait-jacket so generally accepted in private enterprise; and set about developing and adopting a scientific rationale or management framework that could assure an optimal allocation and effective application of effort with respect to defense programs in terms of the three basic resources. Not only is the formulation of such a framework possible, it is considered to represent our only hope for maximizing both our immediate and long range national security. And, thanks to the modern tools (management sciences), techniques (Operations Research), and accessories (high speed computers).

We are engaged today in the medium-range plan for developing and adapting management science techniques to specific functional areas; and, even more especially, in the short range plan of securing electronic computer installations and achieving operating experience on the more elementary management problems. At the

moment the Navy program can best be described as being in a state of transition from the short to the medium range plan. The short range plan will be virtually completed by the end of fiscal year 1959. For example, electronic computers are already installed in Supply Demand Control Points responsible for more than 90 percent of Navy hardware items which represent about 85 percent of the Navy's 5.6 billion dollar total material inventory. Also, by 1 July 1959 electronic computers will be installed in nine of the ten continental naval shipyards.

The shipyard program, incidentally, is especially indicative of the nature and objective of the Navy's over-all EDP plan. The shipyard program provides for a heterogeneity of equipment and systems with a view to concurrently reaping the benefits of marginal economies and machine experience with small computers; establishing the utility and limitations of intermediate machines for resolving the problems of large industrial establishments; and pioneering the development and application of management science techniques to such problems by pilot installation of large scale computers. The medium range plan entails the accumulation and evaluation of this experience, and the gradual extension and perfection of management by exception and operations research techniques in the various functional areas. Ultimately, of course, we shall seek comprehensive horizontal and vertical integration of the functional systems into an integrated Navy management information system. However, the current state of our experience, the state of the EDP art itself, and especially the primitive characteristics of currently available equipment — all militate against firming up a detailed long range plan at this time.

In pursuing both our short and medium range plans then, we essentially strive for improved management effectiveness. However, in both of these endeavors, and particularly in the latter, we are continually plagued by the inevitable demand for economic justification. A request for approval of a computer installation must include documentation of the potential economic advantages of the installation. At the same time, the development and testing of the more sophisticated management science techniques are actively discouraged, since such plans normally entail skilled personnel, considerable time, and something more than a small scale computer. This situation prevails despite the fact that modern computers without the high-octane input from the management sciences are like the modern jet airplane without fuel in the tanks. Both have lots of potential, but you can never really get them off the ground.

In implementing our medium and short range programs, then, we can never really lose sight of the need for proving some dollar savings; and obviously savings are desirable. We would be negligent if we failed to take advantage of even very small savings. However, there are two further points regarding savings that should be clearly understood. First, the really significant improvements in effectiveness will never show up as dollar savings; and second, most identifiable direct savings effected through use of EDP are insignificant when viewed from the Departmental level.

With respect to the first point, let's review one of the probably significant improvements the Navy expects to realize through the use of EDP. The scheduling of combatant ship overhaul and repair work in Naval Shipyards would be a good example. The shipyard has a multitude of jobs to do and each should be completed by a certain date. Most of the jobs involve varying numbers of people of assorted specialized skills, and a wide range and variety of tools, facilities, and supporting services. Some things must be done in a certain sequence, and other things can be done anytime during the ship's availability. This problem not only requires good scheduling to avoid fluctuations in the work force and to assure the ship being completed on time; but it also requires good scheduling to save the "time" of the productive worker in waiting for material, waiting for access, waiting for assist trades, waiting for tools, and even waiting for assignments.

The day-to-day solution of a problem reflecting so many complex variables is only susceptible to solution through the use of management science techniques and associated high speed computers. The better schedules so evolved will effectively reduce substantial amounts of idle time, and correspondingly result in more productive work — but for the very same total dollar equivalent of man-hours charged to the job. In other words, the better schedules will be used the minute we get them; and though we may well spend the same amount of dollars on productive work, we will have completed more work on the fighting ships in overhaul. These will be more effective fighting ships.

Now let's review the second point, the assertion that most identifiable EDP savings are insignificant when viewed from the departmental level. Consider the Navy-wide preparation of payrolls as an example. If you were to represent

the total annual 10 billion dollar budget of the Navy as a one inch line on a bar chart, then the total cost of preparing the Navy payroll couldn't even be seen on the chart. It doesn't really matter how you compute the payroll preparation cost. You can count it as 5¢ per check, 20¢ per check or even \$1.00 per check. Using the scale of the over-all budget you would get a line so short that it would be invisible. Why then do many activities almost always give early emphasis to preparing payrolls on computers?

There are probably two reasons. The first reason is that savings in this area are tangible. This is a valid reason. It would be criminal not to make even very small savings — provided of course that the pursuing of the small savings didn't absorb your total efforts and thereby preclude undertaking significant improvements in effectiveness. However, there is probably another more ominous and less valid reason for concentrating on these small savings at the local level. This would be the local knowledge that the higher levels place first emphasis on savings rather than effectiveness. In short, it is highly probable that predilection of top management for savings per se prompts lower levels to give undue emphasis to savings that top management can't even see.

Top management must be made to realize that manpower, material and minutes are the really basic national resources; that money is not; and that improved effectiveness in their management of these resources is their principal objective. Though it may be some index of the personnel or material required to do a job, money is no index of the time it takes to do a job. In this sense money is simply like the moon. It affords only an inferior reflection of the real source of our energy; and, like the moon, it has its dark side — in the hidden costs, the untraceable expenditures, and the microscopic savings that no auditor will ever see in the light of day.

If, on a given job you can effect a saving in time, manpower, or material; then you will undoubtedly save some money. But, if on a given job you arbitrarily undertake to save money in the first instance; you can only end up with less than the given job. The real truth of the matter is that when one optimizes effectiveness he automatically optimizes economy. However, the very improvements which do the most to optimize effectiveness are the very ones you would never look for in searching for economy.

## A SYSTEM FOR EVALUATION OF OVERALL EFFECTIVENESS OF REAL PROPERTY MAINTENANCE MANAGEMENT WITHIN THE MILITARY ESTABLISHMENT

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As management looks for ways and means of increasing efficiency of operations in our military establishment one of the basic areas which should be given close scrutiny is Real Property Maintenance Management. The term "maintenance" in this sense meaning not only "keeping in a state of good repair" but also the entire gamut of management decisions which collectively determine the overall cost of this Real Property Plant, i.e. from construction justification to disposal.

This is classed a "basic" area (1) because it would be a cost element for primary distribution to activities in any overall costing of defense component productivity and (2) because of its relative stability in physical composition compared to the ever-changing end products of which it would be only a part of the total cost.

The area is a monster in itself. On a global basis it is concerned with some 900 major and 2,200 minor bases of the Department of Defense. The estimated initial cost of investment of 28.7 billion dollars represents approximately two-thirds of the total real property value held by the executive branch of the Government. The maintenance repair, renovation and rehabilitation (other than new construction) costs have been amounting to between 1.5 and 1.7 billion dollars annually.

With the necessity for a high level of military readiness extending indefinitely into the future it is apparent that this huge Real Property Plant will require continuous planning on a long-range basis. Management must be in a better position to control, through evaluation and continuing policy decisions, the state of readiness of the overall plant — its construction, maintenance and replacement — at the lowest possible cost.

Recent developments of uniformity in the classification of physical property have laid the groundwork which will enable us to arrive at practical answers in the Real Property Maintenance Management area with the adoption of requisite accounting and engineering evaluation techniques.

How then, can we improve accounting methods so as to achieve maximum results in the pursuit of our objectives?

The system proposed here summarized streamlined procedures suited to the magnitude of this physical property plant. In essence it re-

quires that evaluation on an individual installation entity basis be augmented by one on the basis of the Real Property Inventory Categories, such as the various types of housing, aircraft pavement, liquid fuel storage facilities, etc.

Maintenance management programs at installations level have developed savings through improved methods of determining work backlogs at shop level, better work-scheduling techniques and programs of preventive maintenance and training. However, there is a need for a high level evaluation program from a broader field of view intended to help answer questions such as:

1. With regard to a given type of facility, and under specific circumstances, would it be more efficient to build permanent, semi-permanent or temporary structures?
2. Are our maintenance efforts being applied in the right area, at the right time and in the right amount?

The answers to these questions require a continuous analysis of maintenance repair levels on the basis of the various types of physical property as defined and grouped in the inventory categories. Obtaining an answer to the "level of maintenance being maintained" question alone, would to some extent indicate the effectiveness of the handling of real property. Much of the information gained in the analysis of maintenance repair levels (when coupled with the certain monetary evaluations) could contribute immeasurably to decisions in both the construction and disposal areas.

Let us start with the comparison of the cost of maintenance repair by physical categories as set forth in the facilities classes and construction categories (DOD Instructions 4165.3 and 4165.14) against the total dollar cost of each related individual category of physical plant. (This total dollar cost would be developed on the basis of original acquisition or construction cost (not including cost of land) and cost of subsequent capitalized improvements. Depreciation would not be considered unless a property revaluation basis were to be used rather than cost. However, this is a subject in itself. Suffice it to say here that in the proposed system the problems encountered because of the dollar inflation, past and future, may be solved by the use of the cost, no

depreciation basis, with reasonable satisfactory results).

This comparison would reveal some useful facts, but it would leave us with one notable gap in the total picture - i. e. consideration of the extent of the rise or fall in the maintenance level of each category of property.

Thus we can see that it would be necessary to devise a method of physical condition reporting or auditing to provide such information by type of property and type of construction. Preferably this reporting would revolve around three elements:

1. A base permanency index. - A numerical percentage to indicate the relative base permanency of each base on the latest 10 year plan, in view of the current and long-range possibilities of use of the base as an operating location.
2. A suitability index. - Also a numerical index, representing a relative designation with regard to the average of a given type of facility, such as temporary family housing, as to its ability as a type to serve the immediate use for which it is intended on that particular base.
3. A condition index. - A relative percentage designation of the average condition of the base property (by category) regardless of its suitability.

Data assembled on the basis of these three elements would then provide the information required for completing the picture, so that in combination we would have (by inventory category and type of construction):

1. Maintenance and Repair costs during the period
2. Property cost
3. The indices of
  - (a) Base permanency
  - (b) Suitability
  - (c) Condition

Consideration of these data would enable management to make evaluations not only upon the relative efficiencies in the use of maintenance funds (by the using entities) but would permit the pinpointing of those areas in which more or less money appeared to be needed for the overall level desired to be maintained in relation to the other categories of Real Property Plant. In fact, the evaluations obtainable from such a program would be the very finest tool for decisions concerning monetary needs on a basis other than by individual cases inasmuch as it would reflect backlog on a broad basis for budget planning.

Assuming that we have decided to go ahead with this program, then the next questions to be answered are: How will it be done? How much will it cost?

First, the maintenance and repair costs during the period by inventory category could be supplied through the "maintenance area" accounts developed pursuant to DOD Instruction 4165.9. Essentially this reporting would be divided into two portions to coincide with the fiscal system, both portions being reported under the same account category designation. All locally funded costs would be reported as one unit of the total. An additional costing of military pay tied in with the morning report system would be necessary as long as military personnel are used in this area.

Due to the development and extended use of stock funds for the holding of supplies and materials until used, the local funded portion of this costing system now becomes feasible on an accrual concept merely by the existing requirement that supplies and materials remain in the stock fund until they are issued for immediate use. There would be no additional appreciable costs involved in the collection of maintenance and repair costs by inventory category. The latter would be just a question of classification of accounts and rearrangement of the work-order numbering systems at installations level.

As to the second element (the total property dollar costs by inventory category) all three military departments now have certain record-keeping requirements in the property cost area, as well as those of a physical measurement nature as required by the DOD Real Property Inventory Instruction. These cost records would be brought up to date with capitalized additions in accordance with a procedure suited to the needs of the evaluation process.

In the third element, the base permanency would come from the departmental installations operations planning groups as approved by Chiefs of Staff. The suitability and condition indices would be obtained by physical inspection of the facilities of the individual bases. On a bi-annual cycle, the physical evaluation inspection cost should not exceed 1/1500 of the amount which is expended for installation maintenance during that period (excluding construction).

An examination of the possibilities of this evaluation system gives convincing evidence of its merit as an effective and necessary tool for management. Its adoption could be the means of extraordinary savings in dollars and manpower as well as improvement in overall preparedness.

## FINANCIAL MANAGEMENT ROLE IN PRICING

*Edward W. Fitzgerald*

The duties of financial management, both in industry and in the Military Establishment are many and varied. This is especially so in view of the world situation as it exists today coupled with our own burgeoning, dynamic and extremely competitive post war economy. One of those duties to which there is attached much responsibility is the complex of establishing selling prices. This responsibility is inherent in the function of financial management, regardless of whether it is for pricing within industry (which has a profit motive) or within the Military Establishment for developing standard prices for inventory and/or issue purposes. This responsibility cannot be minimized if financial management is to fully accomplish its mission.

It is not the intent of this paper to discuss the pros and cons of whether an enterprise would be doomed to ultimate failure if these responsibilities were not recognized and appropriate use made thereof. It is rather the intent to highlight in broad focus, a number of relevant factors bearing on the problem. It has been the writers experience, coupled with considerable research, that all the elements discussed herein must receive the most exacting consideration, otherwise prices will be unrealistic in industry or within the Military Establishment.

It is axiomatic that pricing policies permeate every facet of commercial enterprise; hence, such policies as a general proposition, are made or tightly controlled by top management. It is also axiomatic that pricing decisions must be profitable decisions. It follows then that to arrive at profitable pricing decisions, top management must have at its command information concerning all essential and relevant factors associated with the problem, planned by informed persons, transmitted at the right time, and presented in a manner which will assist top management to function at maximum efficiency. Simply stated, the above constitutes "Profound Judgment" which may be defined as information obtained by an assiduous, thorough, and penetrating probing of all facets of the elements necessary for establishing profitable prices.

At best, pricing is a complex procedure, and if the question arose as to which function singularly makes the largest contribution to top management in evaluating the alternatives that must be considered in establishing selling prices, the functions comprising financial management most assuredly would be at or near the top.

Pricing, basically is a problem of forecasting. Top management, in order to arrive at profitable pricing decisions, must, at the barest minimum, be able to:

- a. Forecast accurately how much it will cost to produce and place in a marketable position a unit of production;
- b. Forecast accurately the expected profit to be realized on the sale of that unit;
- c. Forecast accurately the anticipated volume of sales for that unit. It is in these three areas that financial management makes its largest contribution toward sound prices.

It is generally accepted in accounting circles that unit cost is of paramount importance in pricing. However, the philosophy that total unit cost is all that is required — from a costing standpoint — in arriving at profitable pricing decisions may not always be tenable. In prescribing pricing policies, top management is primarily interested in the future and only secondarily interested in the past; hence, cost information needed for pricing units of production may differ considerably in any company, and necessarily must be dictated by the circumstances existing at the time. Moreover, cost information needed for establishing prices may and frequently does differ in many respects from those costs usually associated with the financial statements. Admittedly, many factors militate against an absolute standardization of cost data for pricing purposes, not only as among several competing companies, but within any one company itself. As principal advisor to top management regarding cost information and its potential impact and applicability to the instance at hand, financial management must be acutely cognizant of all cost information available to it, and be sufficiently capable of effectively and efficiently utilizing this information. Once the basic source cost information is received, it then becomes necessary to assemble that information for summarization into easily read and understandable language for the subsequent preparation and submission of a considered interpretation of the data and underlying reasons for the conclusions so presented; that is, an effective presentation to top management.

Forecasting accurately anticipated volume and expected profits must be a well developed and integrated program of long range planning,

the functions of which should permeate every facet of the enterprise and, to the maximum extent possible, the long range program of its competitor. It should include but not be limited to the following:

- a. financial outlook;
- b. productive capacity;
- c. source of labor, utilities and raw material;
- d. proximity to customers or product outlets;
- e. marketability of the product, including appearance, packaging appeal, and the purpose thereof; that is functional, wearing apparel, commodity, novelty, etc.;
- f. planned changes in quality, production, or cost control programs;
- g. anticipated changes in marketing, selling or advertising techniques;
- h. other factors which may be known or prevalent.

In practice the application of the items discussed herein, in determining prices, is governed by a number of factors, but here are just five important ones:

a. Company Policy. Is it the policy of the company to expect a certain percentage of profit over full cost per unit of sales? Is it company policy to add a mark-up or mark-on to full cost? Is it company policy to use escalator prices predicated upon variations dictated by customer demand? Is it company policy to use full cost as a yardstick against which to measure the effectiveness or shortcomings of its pricing policies?

b. Type of Company. Is it a multi-product company where the sale of one unit of production may produce a large margin of profit as against the sale of a unit of production which may command but a small margin of profit? Is it a single product company with a large margin of profit on the sale of a single unit of production? Is it a special job company catering to only one customer? Is it a mass production company whose profit is wholly dependent upon a large volume of unit sales at a nominal margin of

profit? Is it a company that fabricates units of production according to customer specifications?

c. Methods of Production. Does the company perform a complete fabrication process from basic raw materials to completed and marketable units of production? Are assemblies produced by subcontractors? Is the company one that assembles, finishes, stores, packages, and ships, but does not fabricate?

d. Sales Techniques. Does the company employ its own sales force, employing its own salesmen? Does the company utilize the services of brokers, distributors, or franchise dealers? Does the company handle its sales through local or national selling agencies?

e. Competition, Including Supply and Demand. Is the company engaged in a highly competitive field? Is there a minimum of competition? Is there an over or under supply of company units available or readily available? Is the demand for those units sufficient to warrant continued production? Would such demand dictate an expansion of present capacity to increase the margin of unit production without reducing the margin of profit? Should substitute production raw materials be introduced? Is the demand so mild as to suggest quite the reverse?

A full knowledge, comprehension, and interpretation of the above will permit financial management to:

- a. Keep abreast of Cost-Volume-Profit conditions;
- b. Select the "one best" cost application in the instance at hand;
- c. Discern market and competitive trends;
- d. Anticipate the necessity for expansion or retrenchment for such items as production, sales, plant capacity, or research.

Through the exercise of close relationship and correct interpretation of the factors presented herein, coupled with astute opinions and decisions transmitted by direct communication, financial management can contribute a wealth of knowledge, information, advice and council to top management in the form of profound judgment and thus facilitate the establishment of profitable pricing decisions.

## MEANS AND ENDS: A THEORETICAL ANALYSIS OF RECENT FISCAL REVISIONS

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(Dr. Finler's article is concerned not so much with the "what" and "how" of accounting systems such as double-entry bookkeeping, accrual accounting and "as-used" basis of costs, as with the question of "why" these things should be done. Because of the length of the discussion, it will be presented in two sections. The first section, published in this issue, deals with the general background of the subject. The second section, to be published in the next issue, will discuss these concepts in terms of specific applications.)

### Introduction

The purpose of this paper is to discuss, on the one hand, some of the implications for fiscal theory of the recent innovations in government accounting requirements and, on the other hand, some inferences to be drawn from accounting theory with regard to these requirements. Accounting theory is defined, for purposes of this discussion, as the framework of professional and intellectual disciplines and speculations for recording and interpreting, in financial terms, the results of economic events. Fiscal theory is concerned with explaining the financial activities of government in their entirety.

The subject will be developed in the following sequence. It will first consider arguments for basic revision of the federal government's fiscal procedures in terms of both the recent theoretical discussions and also in the context of particular interpretations. Then certain basic economic principles governing both business and government will be analyzed, in so far as they determine fiscal practices. Specifically, the treatment of fixed assets in business and government will be compared, with particular reference to the narrowing margin between the traditional government procedure and current trends in business accounting. The economic determinants of competitive private enterprise and government will be examined briefly in terms of their relation to fiscal practices.

Furthermore, a common ground for business and government fiscal practice will be explored in the statement of sources and applications of funds. The elimination, in this procedure, of charges and reserves for imputed costs such as depreciation, appears to shift the prime emphasis from net to gross returns, and from net to gross investment, in both business and government. This procedure, viewed as a statement of "flow of funds," is recommended as a serviceable framework for implementation of the new fiscal requirements.

### The Case for Fiscal Revision

There have been numerous treatments in professional publications of the objectives indicated by the recent directives of administrative and legislative bodies: e. g., the reports of the Hoover commissions and Public Law 863. Stated sometimes explicitly, or sensed implicitly between the lines of both the official directives and their unofficial interpretations, is the widely held notion that the federal government can and should, in one way or another, introduce business type accounting into all its operations. That is, it is asserted that

the traditional budget and accounting system which concentrates on fund requirements and obligation control . . . fails to give adequate attention to agency liabilities, the dollar value of physical assets, operating inventories and operating costs. It usually provides data only on obligations, which reflect the commitment of funds, and disbursements, which represent the payment of funds. (Percy Rappaport, "Improvement of Financial Management in the Government," Federal Accountant, VI, June 1957, p. 13)

Consequently, the intention allegedly is to provide

an accrual accounting system . . . (which) develops information as needed on the costs of goods and services used, on accrued expenditures which show goods and services received, on disbursements that represent payments made, and on obligations that reflect orders placed . . . In contrast to traditional accounting practices in government, an accrual system thus not only reflects the availability of funds, but also shows the resources on hand and the actual use of such available resources. (Ibid.)

The applicability of this revised procedure to certain types of government organizations (e. g., supply activities of the military establish-

ment) is particularly implied in the statement that

a cost-based budget is most beneficial in programs involving large inventories and long lead-time items, because it identifies carry-overs of available resources . . . (and) the use of resources in relation to the time period involved. (*Ibid.*)

The prime objective is "better disclosure of financial status and operational results to the various levels of management in government." In commercial accounting, financial status is presented in the balance sheet and supporting schedules, and operational results in the statements of income and expense and of surplus (i. e. retained earnings). Moreover, a basic postulate of corporate reports is the integrated relationship of these statements and schedules.

Similarly, a basic objective of government fiscal reporting would appear to be adequate disclosure of status and results by means of an integrated and meaningful system of accounts. The current problem presumably is to develop such a system, since the traditional governmental fiscal reporting system allegedly does not constitute, and the traditional commercial accounting statements and procedures apparently do not provide, such a system.

#### Comparison of Government and Business

It is perhaps more than a coincidence that urgent recommendations that the government should dispose of its "business-type" enterprises (ranging from Navy paint factories to TVA dams) should be paralleled by recommendations that the government should adopt "business-type" accounting methods. The advantage to be gained from the latter, presumably, is that the government should thereby be enabled to realize a better price for the former, if it sells these enterprises, or to run them more efficiently if it retains them.

However, the mere facts that government agencies manufacture paint and keep financial accounts do not in themselves justify either of the two recommendations cited in the preceding paragraph. Those two facts are symptoms rather than causes. In order to go beyond symptoms to causes, an inquiry into some basic factors relating government and business will be attempted in this discussion — without however getting into the particulars of the specific enterprises involved or attempting an exhaustive discussion of the similarities and differences of government and business.

One product of recent research is the recommendation that government budgeters and

accountants learn to think in terms of procedures which will more nearly reflect the results of a proper "matching of revenues and costs," this being a fundamental principle of business accounting. But, far more than an accounting procedure, this "matching" principle is a restatement of an elementary economic law.

The total costs of a business enterprise in economic terms are the amounts expended for the factors of production: land, labor and capital. Costs thus include "normal profit," as well as interest, as the reward or price of the capital factor — whether borrowed or invested. The total revenues of the firm are the opposite side of the coin. For any business, revenues (i. e., sales or output) are the sum of costs (in the accounting computation) and net earnings, these constituting total factor cost or input. Of course, simply as a matter of common necessity, a businessman must match revenues and costs in order to stay in business.

This is not simply a tautology nor just a characteristic of the individual firm, but is true for the economy as a whole. That is, the national product is regularly computed both in terms of expenditures (charges against production for factor costs) and of income (remuneration of factors of production). (See National Income 1954 Edition, U. S. Department of Commerce, pp. 30 and 162-165 for detailed discussion and data.)

This compilation includes the transactions of government, in the form of a consolidated statement of receipts (taxes) and expenditures (primarily purchases of goods and services). Taken in broad outline, then, the equation of revenues and costs (defined so as to include, in both cases, the surplus or deficit) is true for government as for business. For the government taken as a whole, just as in business, revenues may exceed or fall short of disbursements — in the short run only. But in the long run, the equation between revenues - receipts and costs - disbursements must be realized — in every going concern, in the economy and in the government.

Consequently, no great economic significance need be imputed to the rigorous dollar limitations placed on fiscal year appropriations in government as, allegedly, constituting a fundamental differentiating characteristic in comparison with business enterprise.

#### Accounting for Fixed Assets

One important differential element frequently cited, contrasting government and business, is that capital acquisitions, the cost of which is ordinarily spread by the firm over long periods, must be funded by government out of the current

year's appropriations. When these are a matter of dams or power plants, whose economic life is, for all practical purposes, unlimited, there is a significant difference between one-year funding by government and, let us say, thirty-year funding by a firm. (The allowance of accelerated — e. g., five-year — write-off for private power projects should perhaps be overlooked as an economic anomaly.)

This kind of government project is however relatively rare, and probably should be handled in some category other than the annual operating expenditures of the government. Recommendations to that effect made from time to time over the past twenty-odd years (e. g., for dam construction) have never been accepted and authorized by Congress.

The most common type of investment in property items, by both government and business, is for limited-life plant and equipment. This type of investment is expected by the businessman to "pay for itself" within a reasonably short period. In fact, in one industry the entire capital investment is chargeable against the current year's income — this is the case of oil producers' drilling and development costs. In industries other than oil production, the "short pay-off" principle strongly influences investment propensities. Defenders of these rapid capital recovery procedures, as in the case of five-year amortization under certificates of necessity, maintain that these differences even out over time. In fact, there has been considerable discussion of the predilection of businessmen to pursue policies — specifically, in pricing — which will provide for capital expenditures out of current (retained) earnings rather than from the capital markets. Thus a significant element of the difference between fixed and variable costs appears to be diluted.

One consideration which exercises a material influence on business policy and accounting, the liability for income tax, is of course completely irrelevant when the investor is the government; however, the effect of tax considerations on business financing and accounting methods, e. g., for the "short pay-off," appears similarly to be narrowing substantially the difference between government and business accounting in this area.

The effect of these trends on the determination of what is the actual use of resources — for fiscal as well as for economic purposes — is highly confusing. There is a fundamental contradiction in a theory of business operation which expects to amortize a machine in three years (even if only for tax purposes) and to use it for twenty. There is a palpable, although elusive,

fallacy in a procedure which permits a structure to be fully depreciated by one owner, then resold and depreciated all over again by the next owner.

Alternatively, there is the case of a firm which follows a policy of continuous replacement of fixed assets. Assuming, for simplicity, that it had gradually acquired ten machines with a productive life of ten years and a similar depreciation rate, it could each year replace an old machine with a new one by using its depreciation reserve for replacements. That is, the gross revenues would be charged each year with an imputed allowance for the depreciation of the ten machines equal to the cost of a new one.

The procedure begins with the inflow of cash (or other current assets) as gross revenues, earned as a return on the investment in productive equipment, and culminates in the property account reduction (credit to depreciation reserve) purporting to subsume the decline in productivity of the equipment. In the example cited above, current assets (e. g., cash) would gradually increase and fixed assets (i. e., equipment) would gradually decrease during the course of the year by the value of one machine. If this cash is thereafter reinvested in a new machine — simultaneously reducing current assets and increasing fixed assets by the identical amount — the cycle of investment-disinvestment-reinvestment begins all over again. This constant flow of business capital up and down the balance sheet may perhaps be visualized more vividly as a sort of "barber-pole" effect.

In effect, this firm would be buying the machine out of current revenues, to all practical purposes exactly like a government agency's procurement of equipment out of appropriated funds.

This is not to say that the above admittedly over-simplified illustration is a rigidly uniform business procedure with regard to the precise matching of current yield with plans for new investment. It is however characteristic of recent trends in corporation finance. By far the major source of funds for plant and equipment, particularly in the postwar years, has been gross retained earnings of which capital consumption allowances, in this definition, constitute the largest component.

Consequently, for economic analysis and in accounting terms, the difference between business and government in this area appears to have been substantially diminished — not because government has revised its procedures to an accrual from a current basis, but — on the contrary — because contemporary business thinking and financing tend more and more to emphasize current rather than future (i.e.,

accrued) relating of yield to expenditures of all types including property.

There is of course no intention here of implying that business is consciously imitating government fiscal practices. The effective causes of the phenomenon described above are the same as influence businessmen's conduct in a pronounced economic expansion: i.e., heightened profit expectations, complicated by price rises, inflationary fears, tax benefits and liberalized methods of depreciation allowances. It must unfortunately be noted that fiscal and accounting theory have not recognized, or provided a cogent explanation of, this evolving tendency of business to blur and even erase the traditional distinctions between the financing of current and fixed assets.

#### Economic Determinants

To review briefly the traditional business procedure — money invested or borrowed is serviced and ultimately recouped from revenues. To do this, the costs of plant and equipment in which this money is invested must be matched by revenues realized therefrom, in terms of their economic life. Thus, the investment in a machine — a fixed cost — is expected to "pay for itself" in terms of increased output and also proportionately lower variable costs than if the machine had not been bought; i. e., the outlay is recovered in terms of not only increased revenues but also greater efficiency and reduced (proportionate) outlay for labor.

Similarly, a government agency justifies its outlays for equipment in terms of efficiency and savings. The responsibilities and rewards of financial management in government and business are not basically dissimilar. If it is feasible to define the economic difference between government and business in causal terms, it may then be possible to find them a meeting ground or common term apart from the rigid application of a traditional rule. There are, of course, no

absolute answers. However, a brief commonsense analysis can yield some interesting results, as follows.

In business, costs (expenditures) determine revenue; in government, revenue determines expenditures (costs). In business, you spend a dollar to make a dollar; in government it goes the other way round. In business, there is a time lag between expense and (anticipated) revenue; in government, this ordinarily is not permitted: — revenue is predetermined, in terms of the funds appropriated or allotted. Even in the case of revolving funds, as in certain units of the Department of Defense, the determinant factor is pretty much the same: it is the availability of funds (or reimbursable orders) which determines the outlays for production, and not the outlays for production which generate the revenues as in the case of business.

The notable exception to this rule of business is the case of production under negotiated contract. Since this latter is a departure from traditional practice of producing for a competitive market, it is the exception that proves the rule. In fact, this case approaches the economic character of public rather than private enterprise, since gross revenues are predetermined, and the only unknown quantity is whether the contractor has correctly estimated his total cost — not his marginal cost, which is the primary determinant in competitive private enterprise. In the alternative case of the cost-plus-fixed-fee contract, of course, even this element of uncertainty is eliminated and net revenue is predetermined.

As for the various accounting procedures applicable to these various enterprises of businessmen, there is no uniform rule. The method adopted is the one considered to suit best the needs of management and owners, and to be in accordance with established accounting principles.

(End of Section One)

*(Section Two of Dr. Finler's article will appear in the next issue of  
The Armed Forces Comptroller)*

## OPERATION OF A MEDIUM SIZED COMPUTING FACILITY FOR SCIENTIFIC-ENGINEERING PROBLEMS

*Kaj L. Nielsen*

It is impossible to begin a discussion of calculating facilities without a slight reference to a historical background. As most of you know the large scale electronic calculators came out of World War II as toys for the mathematicians and scientists who were attempting to solve rather complex military problems. At the start most of these calculators were developed by universities and government facilities in cooperation with the various branches of the Department of Defense. After it had been proved, somewhat vaguely, that these calculators could be efficiently operated, a few of the larger commercial producers of automatic accounting machines entered the field and there were developed some excellent machines for the solution of scientific problems. These manufacturers also realized that from a profit point of view, the volume of business from the scientific-engineering phase would not be very large. Consequently, they were simultaneously developing machines which could be used for business and accounting problems. Thus there has been developed through the years two types of calculators; one, the scientific-engineering calculator, and, two, the commercial calculator. The second has far surpassed the first in quantity if not in size and what started out to be toys of mathematicians and scientists has now been consumed by the commercial users of business operations.

The scientific-engineering calculator has not been completely lost in the shuffle. Prompted by the heavy demand of the rapid scientific advances and modern national defense, these calculators have progressed in size and scope. We now have such calculators as the Norc, the Lark, the Stretch and other mammoth installations. The speed of calculations are fantastic, the volume of arithmetic staggers man's imaginations, and the developments have been extremely rapid. There are now close to two hundred manufacturers of calculating machines of various sizes and descriptions.

Of the scientific calculators today there are two distinct types: the digital and the analog. This discussion will be limited to the digital calculator. We shall further restrict ourselves to what may be called a medium sized installation, although in the eyes of some people this may actually be a small facility. Specifically we shall discuss the scientific calculators at the U. S. Naval Avionics Facility. This facility is concerned with the research, development and

production of airborne avionic equipment for the Navy. One of the operating departments of this station is the Research and Test Department which has in its organization a Mathematics Division, a Physics Division, an Electronic Development Division, an Evaluation Division, and a Materials Division.

The calculating facility had its birth in the Mathematics Division and grew from the electric desk calculators to the second IBM Card Programmed Calculator installed in the State of Indiana, to the first IBM 650 Magnetic Drum Calculator installed in Indiana until now it consists of one card-fed IBM 650, one tape-fed IBM 650 and the necessary off-line equipment. The equipment is operated by the Numerical Analysis Branch of the Mathematics Division. This branch also operates the scientific data reduction equipment consisting of two tele-readers, telecordex and a teleplotter. The off-line IBM equipment consists of a key-punch, a verifier, a sorter, a collator, a reproducer, and a 407 printer. This constitutes, in our opinion, a medium sized scientific calculator installation.

The Numerical Analysis Branch consists of eight people: four mathematicians, three computer programmers, and one computer systems operator. Although this is an extreme case of understaffing, the calculators are in continuous operation on a 40-hour week due to the judicious use of the specific personnel, and the rest of the mathematics divisions combined with the nature of the problems. It should also be mentioned that much of the data reduction is done during the summer months with student trainee help.

In order to illustrate the operation let us take a hypothetical problem. The problem originates from a specification, requirement, or failure. The first step is for the mathematician to create a mathematical model which represents the physical situation. A mathematical model is usually in the form of a system of equations or formulae which interlock the variables and parameters. Certain conditions are then specified which define the constants and range of parameters. The complete mathematical analysis verifies the model, reduces the equations to their simplest form and prepares them for the numerical analyst. As the problem is passed from the mathematician to the numerical branch there is close contact between the mathematicians in the various groups, the phy-

sicists and engineers as questions concerning desired form of results and range of values are mutually agreed upon.

The numerical analyst now takes over the problem completely as he first checks the equations for compatibility and determines the mathematical procedure for the solution. For example, if it is a system of differential equations he may decide to use the Runge-Kutta method for its solution and then choose the increment length of the independent variables. The equations are then broken down into step by step procedures and turned over to the programmer. The programmer then prepares the flow chart, codes the problem for the machines and prepares a test case. The test case is run off on a desk calculator while the cards for the test case are being prepared. When the cards are prepared the test case is run on the machine and checked against the hand calculation. If everything is in agreement, the problem is given to the systems operator for scheduling and running. At the completion of the problem, the results are given to the mathematician for analysis. If it requires further statistical analysis and calculations, these follow the regular procedure until the mathematician has the results in their desired form. He then schedules their preparation in tabular or graphical form for inclusion in his report. This is a thumb nail

sketch of how a problem flows through our "shop."

Although the greater part of our problems are of the scientific-engineering kind, the facility also furnishes services to the entire station except the fiscal people. Thus we do considerable amount of work for the Quality Control Department of a statistical nature and a small amount of work for production control and scheduling.

One is always asked if these calculating machines pay for themselves or can we afford them? This is not an easy question to answer because the inquirer desires the answer in the form of dollars and cents. Whereas many times the machines buy time and advanced developments which cannot be measured in dollars and cents. For example, how much did it cost the United States not to be the first to launch a satellite? How much money would we have saved if we had been the first?

Money is saved in various ways. As an example, this facility prevented the expenditure of \$5,000,000 on a project which was doomed to failure. This was conclusively proved on our calculators. At an expenditure rate of \$200,000 a year we have thus earned our right to stay in business for 25 years. Perhaps a better comparison is the fact that we can "fire" many a missile on our calculators for an infinitessimally small fraction of the cost of firing one in Florida.

## THE TRANSPORTATION MANAGEMENT PROGRAM

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"Management" became a popular subject in the Government and in the Department of Defense particularly during 1950. Transportation was one of the areas singled out for management study and development.

The Department of Defense Management Committee in 1951 authorized and directed the establishment of a joint pilot shop at Fort Dix. The services of an industrial engineer were employed in an effort to develop a uniform management program for transportation applicable to all services. After approximately one (1) year's experience with this pilot shop, it became apparent that a uniform system was not feasible or necessarily desirable because of the variation in the missions of the services, differences in internal procedures and problems encountered. The joint pilot shop was therefore discontinued and each service directed to establish its own pilot shop to develop programs suitable to its own needs. Each was to give particular attention to procedures designed to control workload input, production in the shop, material issues and overhead and to include an adequate system of cost accounting to indicate the progress being made in the management of the shop. A coordinating committee was established composed of representatives of the three (3) services for the purpose of exchanging ideas. The Navy established its first pilot shop at the Naval Station, Treasure Island. Some time later an additional pilot shop was established at the Public Works Center, Norfolk.

We turned our attention first to workload control. Our former method of scheduling inspections on vehicles was based on mileage. That is to say that each vehicle was expected to report to the shop every 2,000 miles, or every sixty (60) days, which ever occurred first, for an inspection. The type of inspection was an A, B or C depending on the accumulated miles since it was last inspected.

It is obvious that under such a system the extreme condition could result in all vehicles arriving at the shop for inspection upon the same day. We have no instances of this actually having occurred. On the other hand, many instances have been noted where shops were extremely over loaded at certain periods with little or no work at other times. We therefore, concluded that a new approach to this part of the problem was essential. Our new system scheduled vehicles to the

shop on the basis of time. We have selected forty (40) work days as the most representative cycle for inspection. Our method then consists of dividing the fleet of vehicles into forty (40) separate groups. The vehicles from each group are scheduled into the shop on one particular day in the forty (40) day cycle. This permits scheduling for a whole year at the beginning of each year. The type of inspection conducted on each vehicle is determined by the mileage accumulated since its last inspection. We therefore, have leveled the work load into the shop by insuring that a fixed number of vehicles will be in for preventive maintenance on a scheduled day.

The next step in the development of this program was production control within the shop. Our previous method provided very little control over the work in the shop beyond that which the immediate supervisor could exert by physically observing the organization of the work being done. Our new method prescribes that all vehicles are first inspected by qualified inspectors so designated in the organization. These inspectors specify all work to be accomplished on the vehicles. No one else has authority to add work to a job in progress. Should the need for additional work become apparent in the progress of the work, it is required that the inspector be consulted and it is his decision as to whether the work shall or shall not be accomplished. The next step is the establishment of the time to accomplish the work prescribed by the inspector. This is achieved by applying the standard hours to those operations where these standards are available or by applying estimated times determined by qualified technicians to the operations where no time standards exist. The Shop Repair Order is then turned over to the shop dispatcher who accumulates the standard hours to add to his backlog of work in the shop. He then dispatches the vehicle to the appropriate work center as dictated by the type of work to be accomplished as well as the amount of work backlog in any particular work center. Thus, he is able to insure that the workload in the shop is properly distributed among the personnel available to accomplish it.

The next area to be considered was the control of material. Actually, the control of material issues has never been too much of a problem in the Navy. Mainly the problems seem to exist in two (2) areas, first, to insure that the material when issued could be easily and conveniently

charged to the proper vehicle or vehicles, and secondly some improvement was desirable in the issue and purchase procedures to provide better service to the shop. In our management system, standards have been established as a ratio of material dollars to direct labor dollars. This appears to give us ample statistical information concerning material consumed in the maintenance of the equipment. In the course of the development of this program, a joint study by BUDOCKS and BUSANDA was conducted in the area of spare parts supply and issue. As a result of this study improved methods of utilizing local commercial sources for the supply of spare parts were developed. Two (2) means are now available to all activities to utilize local commercial sources for spare parts, first, what we know as Blanket Purchase Order (B.P.O.). It is essentially an open-end contract with a supplier. Secondly, the use of the imprest fund was adopted. This is essentially a cash and carry operation where the supplier receives cash payment for the parts when he delivers them. In addition to this, of course, the Navy Supply System still furnishes certain insurance items which are of a long lead-time procurement nature not generally available in dealer's stocks. By this method the stocks of spare parts in all shop stores have been drastically reduced.

The final area to be analyzed and brought under control in the program was shop overhead. In developing a method to analyze this part of the problem the normal overhead of the shop was divided into its several elements such as, supervision, shop stores personnel, waiting for parts, leave, and several others. Standard percentages of labor were established for each of these parts. Control of this part of the cost is accomplished through a monthly analysis and a comparison against the standards established.

We have now brought under control all of the elements of cost involved in the shop operation. It now remains only to develop an adequate cost accounting system which will in simple terms indicate to the managers of the program what conditions are in the shop and what areas require study for improvement. This part of the problem was accomplished with the advice and assistance of the Navy Comptroller, and is simply accomplished by a method of coding all material and labor charges to equipment types and/or overhead codes. All costs within the shop area are accounted for in this system and all labor distribution cards are reconciled daily with the payroll cards. Standard hours authorized are compared with actual hours expended and finally a shop control rate is established monthly. This shop control rate is based on the cost of the

total direct and indirect labor divided by the standard hours authorized. This is our common denominator for comparing shop operational costs with commercial costs in any particular location.

After some experience with these elements of transportation management and finally developing them to the point of feasibility, we turned our attention to the subject of utilization. It had been recognized for some time that mileage alone was not a satisfactory criteria to indicate the degree of utilization. It did not take into account such things as the variation in missions of activities, the physical layout, traffic congestion, distances to be traveled, climatic conditions and others. Obviously a cumulative hourly record of use would be satisfactory but extremely costly to compile. In order to accomplish this objective with the least effort we devised a method of sampling the transportation pattern at each activity by timing and measuring a sufficient number of representative trips required by each vehicle type to establish the average miles per hour which could be expected from each type of transportation service required to meet the activity's needs. With this scheme we have determined a speed time factor which provides us with a simple, reasonably accurate method of determining the amount of rolling time experienced by each group of equipment at an activity. We need only to read the speedometers to establish the total number of miles accumulated during the period under study. This we divide by the so called speed time factor and we arrive at a figure which represents the total productive hours for that group of vehicles for the period. In order to make this effective it was necessary to determine what ratio of productive hours to available hours represented a satisfactory utilization performance. This we accomplished by studying the experience of fleet operations for fleets of about the same size as the Navy's with a transportation problem as nearly comparable to the Navy's as possible, and adjusting these against certain peculiar Navy requirements.

Finally, the one remaining part of the transportation management, operational cost, was put under an identical system as nearly as possible to the one employed in the shop. The same type of cost is collected and the same type of report is made. Yard sticks to measure the performance have also been established for this function.

What have we accomplished since 1954 in the Transportation Management Field? First, we have completed the implementation of the program in all activities, continental and overseas in both the maintenance and operations branches. Maintenance personnel has been reduced in

number by approximately 3000, see chart #1. The inventory of our general purpose vehicles has been reduced by 5000 units, see chart #2. Maintenance cost per mile has been reduced from a high of .08 to a low of .035, see chart #3. This low has recently risen to .037 $\frac{1}{2}$  due to increasing age of our vehicles. The yearly average mileage per unit for our sedans has increased from 8500 to slightly over 12,000 miles annually. The average for all general purpose vehicles has increased accordingly. See chart #2.

To sum up the above we can say that the Navy is spending approximately \$16,000,000 less per year for transportation than we were in 1954. These funds are available for other projects that have necessarily been deferred in the past.

More specifically, by reducing the number of vehicles on inventory there are less to be replaced; less requiring maintenance and less manhours required for maintenance. Finally, the vehicles are available for utilization a greater part of the time.

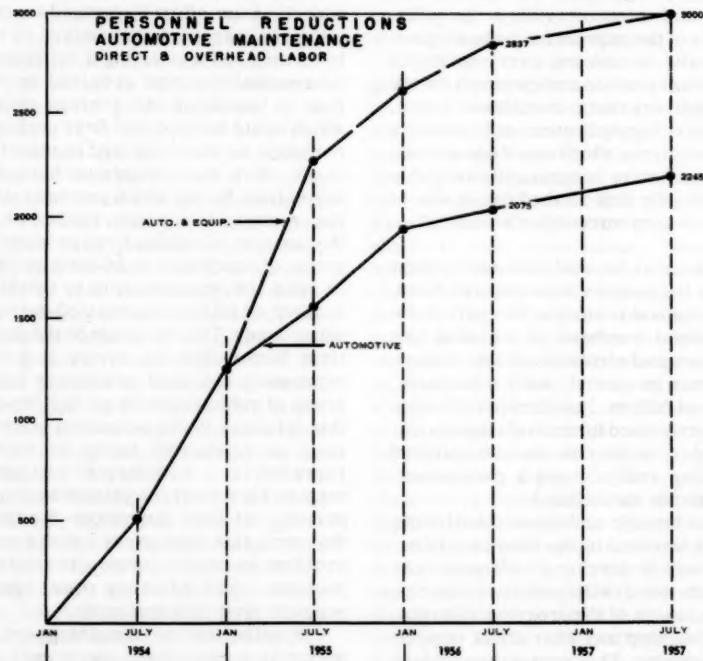


CHART 1

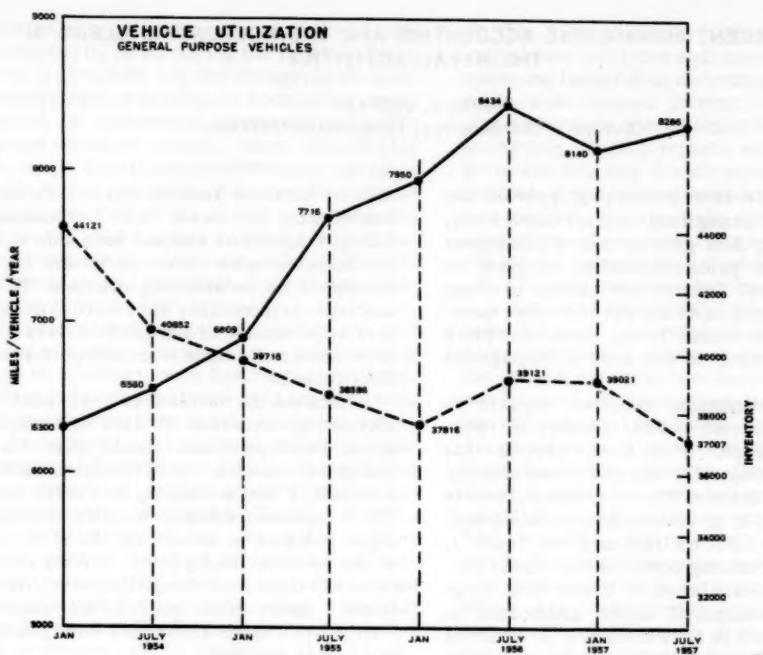


CHART 2

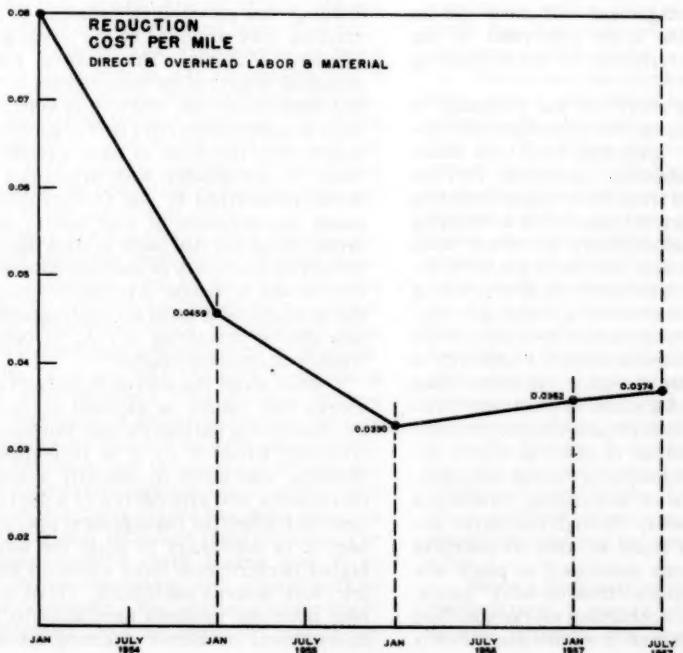


CHART 3

## EMERGENT MANAGERIAL ACCOUNTING AND THE ACCOUNTING CLERK IN THE NAVAL ACTIVITIES

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Will transaction accounting provide the basic data for management action? Conversely, will accounting data provide only a subsequent verification of prior statistical analysis or engineered data? Part of the answer to these questions is found in an answer to another question, What contribution is the accounting clerk capable of making in the area of managerial accounting?

Where management requires answers to problems concurrent to or in advance of transaction occurrence, it is fairly obvious that engineered estimates or statistical calculations are the timely answer. Where the only interest is a fiduciary one, e. g. uncommitted, unobligated, unexpended balances (accrued or "cash"), transaction accounting compilations should provide the necessary answer. There is a large segment of managerial action predicated on dollar data which is not exclusively in either of the above two categories. Many factors contribute to determine which source — engineered estimates, transaction accounting or statistical compilations — management will use to get its answers. One of the most important is the availability and performance of the accounting clerk.

The accounting clerk for the purposes of this discussion is a personified management concept. At the basic operating level and under supervision, he establishes, maintains, verifies and prepares reports from the official accounting records of the activity. Included in the accounting clerk concept are supervisory personnel when performing that function. Normally the accounting clerk is located in the centralized accounting office but, when decentralized accounting is discussed, he may be considered as a part of the staff of other designated activities. Flexibility to meet local or rapidly changing conditions often requires the accounting clerk to prepare procedures or modifications of procedures promulgated by higher authority in order to insure effective utilization of his efforts. He can no longer, as in the early days of accounting, process a transaction as an entity through the entire accounting system but must be able to interpret and follow procedures developed to place accounting transactions on a "flow-of-work" basis.

Yet many of our accounting clerks qualified over the years as the man or woman who wrote a

neat or accurate record, who could always find that invoice, who was a "whiz" in operating that adding machine or who had been able to master the more complex office equipment such as a calculator or bookkeeping machine. This is no discredit to them; they were hired to do just what they were capable of doing and the Navy could not have operated without a smooth performance of their function.

Because of remoteness from professional accounting activities or lack of resources to attend a college of their choice, all too few of the younger accounting clerks have the advantages of a broadly based accounting discipline such as a C.P.A. apprenticeship or a college course leading to a degree in accounting. Due to the absence of an adequate background, certain doors are closed to them even though they have progressed from a lower grade position and possess the "drive" that might otherwise have placed them in a higher position.

Some of the required background may be supplied by on-the-job training or by collateral reading. An outstanding example of on-the-job training was provided by the Naval Air Station, Norfolk, Virginia. That station realized the potential impact of the requirement in Public Law 863, 84th Congress, wherein is stated that, "As soon as practicable after date of enactment of this subsection, the head of each executive agency shall, in accordance with principles and standards prescribed by the Comptroller General, cause the accounts of such agency to be maintained on an accrual basis to show the resources, liabilities and costs of such operations . . ." The station was fortunate in being able to contract for the services of a local accounting professor who was also a practicing C.P.A. to conduct a refresher accounting course.

What about the preponderance of accounting clerks that cannot be exposed to the climate of the accounting college or specialized on-the-job training? First of all it is incumbent upon the systems specialist to simplify accounting requirements and procedures to a degree consistent with effective management operations. Second, it is necessary to point the way toward a higher performance level whenever the accounting clerk desires assistance. Third, it is incumbent upon the systems specialist to recognize management problems affecting accounting op-

erations and to enlist the aid and action of cognizant authority in rectifying the problem. In the Navy it is generally felt that the aggregate skills and motivations possessed by accounting clerks represent a substantial asset without which operation would be difficult. There is a pressing requirement to utilize more effectively that asset as well as to increase it. It is easy to state the problem, easier to state broad principles and objectives. There is often a general feeling that such statements will motivate actions leading to a solution, or an acceptable range of solutions. However, it is not that simple.

It is the position of the writer that the accounting clerk is entitled to a self checking system of communicating fund resources charges. If the fund administrator does not utilize and verify the reports sent to him, it may be necessary to consider reversing the reporting cycle and require information to flow to the accounting clerk in order that he may establish the necessary verification of charges. The lack of additional verification of the accounting clerk's records through usage of his reports and exceptions thereto often leads to a recurrent round of charges that the accounting clerk's records are not accurate. The fund administrator or his clerk sometime fail to recognize that, (1) the official dollar status of station transactions is on the books of the accounting clerk, (2) the fund administrator's records are records of request for and receipt of material and labor cost estimates, (3) communicated information is to be utilized or discontinued, (4) reasonable effort should be made to verify communicated information and exceptions thereto should be reported to the originator of the communication and (5) somewhat less exacting concepts of fund status are employed by operating personnel than are employed by the accounting clerk.

The above conditions are often best resolved through properly monitored "middle management" meetings. One of the best services offered by the systems analyst is the occasional roundtable discussion which is scheduled when local communications are observed to be inadequate. The "give and take" of such meetings is good for all concerned. The systems analyst gets the three sides of the story together, his own preconceived concepts are updated, the accounting clerk learns to talk the language of management and to communicate his ideas, and the fund administrator's clerk learns that fund status is determined within technical requirements. The fund administrator's clerk learns that if he plans an outlay consistent with direction from cognizant authority, the status "committed" vice "obligated" will not affect the availability

of "his fund resources". He learns that such availability will more and more be determined by operating budget data and management decisions made with respect thereto. In fact the fund administrator's clerk begins to realize that the accounting clerk's reports are based on firm premises and that if such reports are properly utilized, they are a valuable source of comparative analysis. For example, validity of previous projections of statistical data as well as accounting for the stewardship of public obligational or other funding authority may be verified.

For some time the various naval authorities have generally operated on the basis that all accounting should be centralized in one office at the station. As operations became more complex and lines of communications became extended at the various naval establishments, naval accounting procedures continued to reflect the centralized accounting concept. Concurrently, non-fiscal groups just as consistently proceeded to establish and run their own accounting functions. The perennial informal accounting records, which often duplicate some part of the information on the records of the centralized accounting office, are maintained through no perversity of human nature but usually serve a purpose which has not always been officially recognized.

If the accounting clerk has successfully mastered fund resources accounting but not cost accounting duties, official recognition should be given that fact in the procedures with which the accounting clerk works.

There are two factors which have not been fully solved and which have tended to render centralized accounting somewhat ineffectual. One is timeliness and the other is format of reporting and classification of data to conform to managerial concepts and requirements. The second concept is one concerning techniques which are conceivably solvable; the only precaution to be considered is one of choosing the least costly of acceptable alternatives. However the matter of timeliness is not so easily solved. Many of the above informal accounting functions are able to prepare their local management reports based on data generated within the hour whereas centralized accounting offices often are not able to report comparable data to the user in a timely fashion. In the future, reporting speed may be achieved through punched tape as a by-product of preparation of the official document. When punched tapes are available, each shop should ascertain if its use is economically feasible.

Since a long waiting time is in prospect for punched tape, it may be well to investigate alternatives. Present day operations produce ex-

amples of wasted effort. As one accounting clerk was heard to say, "We have spent four months keeping these two thousand job cost records and nobody uses the information, why keep them?" A check into the local accounting practices and use of the recorded data disclosed that the fund administrator was able to prepare controlled maintenance and other cost reports before the centralized accounting office could record the related data; centralized report preparation was a week or more later than its decentralized version. At that station, the effective use of the centralized cost records consisted of expenditure account reporting and compiling station semi-annual budget data. The same pattern has been observed at other stations and may well set the stage for an acceptable re-evaluation of the centralized accounting concept.

To illustrate that possibility, let us explore one alternative to centralized accounting as it is now prescribed in the Navy establishments. Consideration should be given to realigning functions as follows:

1. The fiscal function is to perform (1) fund resources accounting, (2) departmental cost data accumulation for budget analysis and control over departmental fund allocations and (3) expenditure account cost data accumulation.

2. Local authority designates where job cost records and departmental journals may be maintained. Requirements by higher authority could be established to insure that decentralized job cost records are controlled by a controlling account and are reconcilable with the related cost ledger maintained by the fiscal office.

A brief outline of such a system is given for the purpose of illustrating an approach but not as a complete solution to a rather complex problem.

1. Restate requirements.
  - a. Accounting clerk in the fiscal office would be required to maintain ledgers by fund resources (viz, in the Navy by allotment authorization with no departmental breakdown). The fund ledger would reflect "commitments to date" and "cash expenditures to date" (cash expenditures in this sense mean either voucher paid or outlays from revolving fund resources). These fund resources ledgers would be reconcilable to the controlling accounts in the general ledger of the station. The accounts in the general ledgers would be:

| Account Title                    | Particulars   |
|----------------------------------|---|
| Authorizations received          | Normally debit balance; should equal total of last line of related entries on fund resources ledgers.   |
| Uncommitted authorizations       | Normally credit balance; should equal balance in "Authorizations received" less the total commitments in the fund resources ledgers.          |
| Outstanding commitments          | Normally credit balance; should equal dollar value of material requested and prior to execution of official document establishing obligation. |
| Outstanding obligations          | Normally credit balance; should equal dollar value of material ordered but not delivered.   |
| Outstanding accrued expenditures | Normally credit balance; should equal dollar value of material received but not expended.   |
| Expenditures to date             | Normally credit balance; should equal total expenditures balances on the fund resources ledgers.  |

The accounts in the fund resources ledgers would be:

| Account Title           | Particulars   |
|-------------------------|---|
| Authorizations received | Normally debit balance; should equal allocations under allotment symbol on the departmental cost ledgers.   |
| Commitments to date     | Total requests to date for material plus total labor charges; reconcilable to total expenditures plus (1) amounts of outstanding commitment, obligation and accrued expenditure documents, or (2) balance of related general ledger accounts. |
| Expenditures to date    | Controlled by general ledger account.   |

(General note: Two accounts for daily posting vice five under present procedures; innumerable breakdowns are eliminated and recourse to departmental cost ledgers is provided in lieu of detailed departmental fund accounting.

Funded accounts receivable ledgers should be subsidiary to budget projects 98 and 99 ledgers or similar fund authorization ledgers maintained in this ledger section).

The accounts in the departmental cost ledgers would be:

| <u>Account Title</u>                                | <u>Particulars</u>   |
|---|--|
| Allocations   | Normal credit balance; total allocations equal by allotment symbol to fund resources authorization debit amount.   |
| Commitments to date                                 | Normal debit balance; total requests for material to date plus labor charges.  |
| Accrued expenditures or "Cash" expenditures to date | Normal debit balance; present expenditure accounting is on "cash" basis. Related general ledger credit data and document files provide reconciliation information. |

(Note: Ledgers for accumulating data for expenditure accounts and budgetary cost functions should be subsidiary to department cost ledgers. Decentralization of detailed job cost ledgers is provided).

b. The fund administrator's clerk would maintain:

| <u>File or Record</u>   | <u>Particulars</u>   |
|---|--|
| File of documents representing undelivered material requests    | File maintained by job order account number within each allocation, list additions daily; add total to related journal; send copy of list to accounting clerk. |
| Requests to date journal  | Should equal material requests charges to job orders; add requests placed; deduct cancellations.   |
| Orders received to date journal                                 | Should equal material orders delivered.  |
| By fund allocations, departmental control on job order accounts | By fund allocations, departmental control on job order accounts  |
| Orders received to date journal                                 | Should reconcile to accounting clerk's departmental cost accounts at close of cutoff dates.  |

(Note: More extensive treatment would outline procedures for processing labor charges and public voucher charges).

## 2. Discussion.

The above is an exploration of a method to align procedures more closely with current informal practices which appear to represent local preference. Transactions for material costs are outlined in somewhat more detail than other types of transactions. That is because

most of the problems with respect to timeliness of reporting are in that area; not that accounting and reporting for labor costs are problem-free but that the decentralization of cost accounting for labor is more readily visualized.

Under decentralized accounting, the accounting clerk is in a position to perform fund resources accounting, cost accounting for budgetary purposes and expenditure account reporting; while the fund administrator's clerk is in the position to do intradepartmental managerial accounting such as job order accumulation and reporting. When volume or complexity of operations justify punched card equipment or computers, the fund administrator's clerk may still be able to compute a substantial amount of data in the department in lieu of programming it for the machine records room. One of the factors under study in the Navy is reduction of the number of categories in cost accounting. The operating personnel such as the fund administrator's clerk is often in a position to exercise some control over the number of cost categories that are established.

It may be argued that some duplication of effort may ensue; however, such duplication of effort may be kept to a minimum by providing a periodic systems review by management or comptroller personnel. Such a review would insure that decentralized departmental accounts do not extensively parallel fiscal office or centralized accounts and that any necessary duplication would function as a control factor only.

The balances on the general ledger, outlined in the example above, do not entirely coincide with those on the fund resources ledgers. That obtains through the difference in end-use requirements; e. g. allotment reporting based on the fund resources ledgers data and monthly trial balances, whereas control over dollar status of outstanding transactions is obtained through totals on the general ledger.

However, the following relationship does prevail:

$$\begin{array}{l} \text{"Cash" expenditures to date} \\ \quad \text{plus} \\ \text{Outstanding accrued expenditures} \\ \quad \text{equals Accrued expenditures to date} \\ \\ \quad \text{plus} \\ \text{Outstanding obligations} \\ \quad \text{equals} \qquad \qquad \qquad \text{Obligations to date} \\ \\ \quad \text{plus} \\ \text{Outstanding commitments} \\ \quad \text{equals} \qquad \qquad \qquad \text{Commitments to date} \end{array}$$

Utilizing the above relationship reconciliations between accounts, control may be obtained. Monthly proof of accounts and utilization of proof totals for reporting purposes is possible.

In any system which is proposed, careful review of the ability of the accounting clerk to feed information to the using authority is necessary. The present procedures are not entirely satisfactory, particularly as to timeliness of end-products. Approaches other than those above are possible and may be developed in the course of time. However, any solution should take into consideration the factors discussed above.

It is this author's opinion that the accounting clerk has handled himself well in his area in view of the demands made upon him. He has the capacity to do much more for the naval establishment. However, assistance is needed to aid him in achieving his potential. In the opinion of one who reviews procedures, it appears that the accounting clerk's position should be studied, restudied and studied again. Particular attention should be

given to coordinating his responsibilities with management lines.

Managerial accounting requirements should be established on the basis of how the requirements can be most effectively integrated with station workload and overall station accounting, not entirely on a preconceived premise of centralized accounting.

It is the responsibility of management to move the accounting clerk out of a controversial situation into charted operations where he can enjoy the assumption of well defined responsibility. He has lacked, under the present procedures, a continuing self assurance that achievement can always be measured by usable end products — such a self assurance is the inherent right of every productive worker. For every enhancement of that intangible the Navy stands to reap tangible benefits. Those who aid the accounting clerk in achieving a status which is commensurate with his capacity will find the work rewarding.

## THE ARMY'S SYSTEM FOR IMPROVING REPORTS

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There are three words used so often in describing the modern Army that they have become somewhat hackneyed. They are magnitude, complexity and diversity. Yet it is their very appropriateness when applied to the Army that keeps them overworked, for the American Army is one of the few single organizations on earth which is involved in nearly every facet of human endeavor. Its military responsibilities alone carry its people and work into everything from ice construction and eye strain to entomology and foreign aid. In addition are its vast responsibilities for the rivers and harbors of the nation under its civil works assignments; and, as well, the Army gets once-in-a-while tasks such as duties in the International Geophysical Year.

Efficient management systems are critical if this mass of effort is to be controlled and directed properly, and if, obviously, the Army is to carry out its primary responsibility of firmly deterring war and fighting swiftly and successfully if deterrence fails.

A prerequisite to effective management is information on the myriad of services, products and efforts which constitute the day-to-day and year-to-year functions of the Army. This information, of hundreds of different types and amounts, is required by nearly everybody with any management responsibility; and this information must be accurate, concise and timely.

For an organization undergoing constant change as the Army to meet its constantly changing missions and requirements, the system or systems which provide this information must remain up-to-the-minute and flexible.

The controlled recurring reports of the Army reporting system today number approximately 15,000. This does not include numerous one-time requests for information or the multitude of forms and paper work that comprise the bulk of the day to day administration of the Army. Such Administrative actions include issue and turn in slips, statements of charges, records of trial and other paper work that consume the time of both commanders and administrative personnel.

To satisfy these increasing demands for information the Army's reports are continually undergoing revision. Old reports are being rescinded and improved while new reports are being initiated. These changes, to meet new demands, result in revision or rescission of the average report about every 15 months.

Additional data requirements to meet changing conditions cannot simply be added to existing reports. Each new report or revision of an existing report must be examined in the light of all available information on the subject and by application of standards of good reporting, at the time the request for data is initiated. Improvements in proposed and existing reporting requirements are nearly always possible through the use of experience data provided by the Department of the Army Reports Control System. This experience data through which improvements in reporting are effected comes from four sources.

### 1. Detailed Examination and Analysis

The first source is the knowledge of the report analyst which he applies during the detailed examination and analysis at the time the report is initiated or proposed for revision. At this time the report is subjected to several tests. The first is to ascertain that the real objective is the collection of information. It must be clear that the proposal really envisions the collection of information rather than the avoidance of other, more appropriate action. It must be ascertained that information is needed to help solve a problem rather than to delay in hopes the problem will solve itself. Too often there is an apparent effort to study a problem thoroughly by requiring additional reports in lieu of acknowledging that the problem is thoroughly understood but its solution evasive or unfathomable. Briefly then the test can be stated: Is information the real need?

Procedural deficiencies may create an apparent need for a report which could be obviated. Defective organization and overlapping or vague mission assignments may provide a superficial need for a report, a need that would not exist if the organizational defect were corrected or the mission assignment clarified. The question to be answered then is: Is it necessary information?

Pertinent to determination as to whether a need for information is the real basis for a reporting proposal is to ascertain why a new report or a revision is needed at the time it is proposed. Under the Army's increasing decentralization of operations the need for every new report must be closely examined. The test is: Is a report the right means?

Without discussing them in detail, other tests are:

**Is the reporting proposal adequate but not excessive?**

**Will the reporting proposal actually accomplish its purpose?**

These five tests are applied to reporting proposals by reports control officers at all levels of command throughout the Army.

These tests represent the basic principles governing report examination. The objective is to achieve and maintain conformance with standards of good reporting as they obviously relate to good management. Answers derived from close examination of each reporting proposal, coupled with intelligence and good judgment, provide a sound basis for action.

## **2. Surveys at Tactical Unit, Installation and Major Command Level**

The second source of data for reports improvements is through surveys conducted at tactical unit and installation levels. Survey teams make on-site inquiry of all recurring, controlled reports prepared at a representative group of units, installations and commands. Through personal interviews, data are obtained on all details of preparation, methods of compilation, uses made, problems and recommendations, and the workload involved. These data provide the basis for recommendations and measures to be taken by all levels to reduce workload or to simplify and improve reporting.

In 1953 a survey was made to measure and evaluate the reporting workload of tactical units in training. This was done to obtain information concerning allegations that reporting in these organizations was burdensome. The survey of tactical units determined that the reporting workload at this level was more burdensome than it need be, and that there was a substantial area subject to direct corrective action within the tactical units. At the company this workload was determined to be 1/2 of a man year which was in turn divided between five people. However, almost one-half of the time required to prepare these reports was due to requirements imposed by the division on its units. At the time the tactical unit survey was conducted the average company was preparing 28 recurring reports. Of these 15 were required by Hq. Department of the Army. The remainder were required by the division and other echelons. Of the 15 reports required by Hq., DA, action has since been taken to eliminate the preparation of 8 at company level. Considerable reporting workload has thus been eliminated.

It is important to note that from this survey it was found that commanders and key staff officers generally considered reporting and other administration as secondary to training or operational matters, and, for this reason, often

were not familiar in detail with either the reporting requirements placed on their units or those placed by them on subordinate units. They expressed concern over their administrative workload but did not realize that something could be done at their level to alleviate the situation.

For the most part, their concern over reporting had not been delineated from other administration, but the latter caused the greater difficulties and expenditure of manpower. To assist commanders in improving their own reporting situation a practical guide which could be applied to reports at the unit level was distributed. Briefly it recommended that (1) An inventory of reports be maintained (2) Clear and complete reporting procedures be used (3) Reports be reduced to essential data (4) Reports be prepared at the source of information (5) Proper forms be utilized (6) Negative reports be eliminated (7) and, Periodic reviews of reporting requirements be conducted.

A similar type of survey followed at 13 selected installations (11 CONUS and 2 Overseas) geographically distributed, which represented the various activities of the Department of the Army and at one major command, Hq. Fourth US Army. It was found that the reporting workload ranged from 16 to 176 man years or roughly 1/2 to 5 1/2 percent of the available manpower at the installations. A study of the locally initiated reports indicated that there was little consistency in the locally initiated reporting requirements. The percentage of the total workload due to local reports varied from almost nothing at one installation to 32 percent at another installation.

Many persons frequently assume that the number of reports is a measure of the workload. If this was so, 10% of the reports would account for 10% of the workload; 50% of the reports would account for 50% of the workload. Instead, at all installations, a few reports account for the bulk of the workload. It was found that 5% of the reports require more than 50% of the workload; 10% of the reports account for 75% and 20% for 87% of the workload. This same pattern roughly fits all the installations surveyed. Thus, these surveys clearly established the fact that a few reports account for the bulk of the reporting workload.

It is in this area of high workload reports that improvements can be most effective. With available resources little noticeable relief in reporting workload is effected by detailed attention to a report that takes only a few hours to prepare. On the other hand a 10% reduction in the effort to prepare a report that requires thousands of manhours yearly to prepare can result in considerable benefits. As these reports

are identified attention is focused on making continuing improvements, not only to reduce the manhours required for preparation but also to improve the quality of the data reported. To date substantial improvements have been accomplished based on the data provided by these surveys.

### 3. Periodic Review of Reports

The third source of data for reports improvements is through the periodic review of reports. This review procedure provides for a continuous, orderly review of reports at prescribed intervals, with the objective of reviewing each report once every 12 months. To establish a sound basis for corrective action, the procedure combines evaluation by agencies required to prepare each report with appraisal and rejustification by the agency which initiated the report.

The results of the review for the last three fiscal years are as follows:

| Period | Total | Reports Determined<br>to be |         |           |
|--------|-------|-----------------------------|---------|-----------|
|        |       | Satisfactory                | Revised | Rescinded |
| FY1957 | 608   | 405                         | 161     | 42        |
| FY1956 | 670   | 412                         | 207     | 51        |
| FY1955 | 556   | 334                         | 163     | 59        |

These data indicate clearly that a relatively high proportion of the reports reviewed (37 percent, on the average) are determined to require corrective action. These include clarifying instructions; bringing directives up-to-date; redesignating preparing agencies, recipients, routing; designing or improving report forms to simplify preparation; better scheduling; addition of more useful data; and reduction in content.

That such a substantial share of the reports required corrective action should not be considered astonishing. The Army is undergoing continual change in operation, emphasis, and organization. Most of these changes require adjustments in reporting. The relatively large share of reports shown as requiring revision, indicates the need for continual vigilance to in-

sure that report requirements are kept both current and minimized.

Since the inception of the Periodic Review of 1954, major improvements in reporting have been effected and substantial reductions in reporting workload have been accomplished. In addition, the review has created an awareness of the continuing need for reports improvement, enabling the reports control officers throughout the Army to do a more effective job.

### 4. The Army Establishment Reporting and Analysis Requirements Project

This project provides the fourth source of data for reports improvement. Under the overall supervision and guidance of the Comptroller of the Army, a comprehensive study of the Army's reporting problems and the underlying factors involved is being undertaken. Studies have been prescribed and action initiated to refine and streamline the Army's reporting and analysis requirements. Briefly, these studies are designed to establish a reporting structure to provide the information needed to manage the Army. The major phase of this project is the appraisal of the responsibilities of each report initiating organization, the data needed to perform those responsibilities and the usefulness of all existing reports prepared, processed or received.

Each General Staff Agency has vertical responsibility within its field, and conducts a study of the reports they require grouped together by functional area. Each study first determines the essential requirements for data at all levels; second, evaluates the existing reports in terms of these requirements; and third, takes or initiates the necessary corrective action. To date, 23 of the studies have been initiated and several have been completed. A number of benefits have been and are being currently obtained.

Improvement of the reporting system is considered to be one of the Army's most important continuing projects. Good management has been called the inseparable corollary of successful combat tactics and strategy. Likewise, management can be only so effective and efficient as the indispensable underpinning found in the reporting systems.

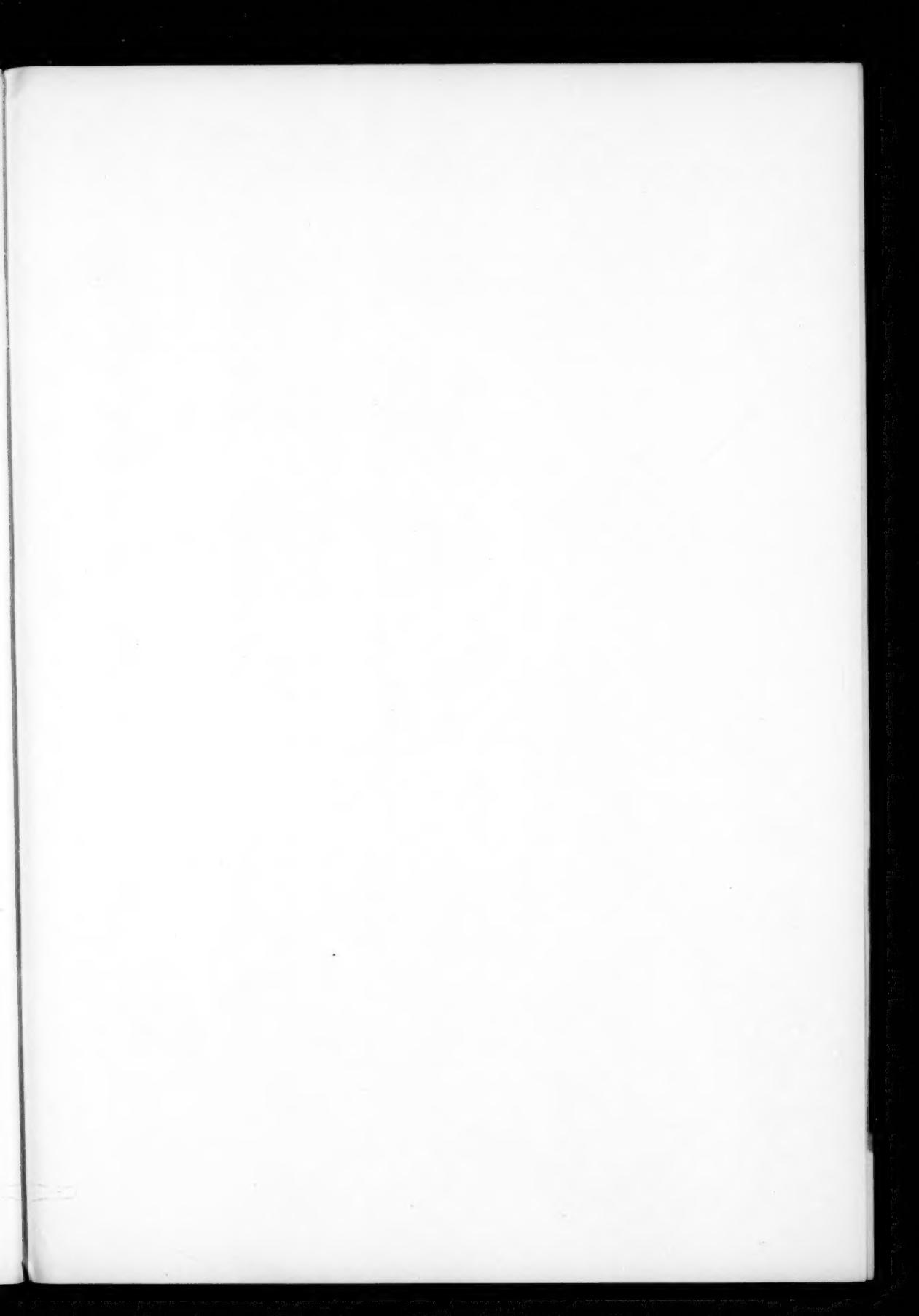
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Second Class Entry Authorized at  
Washington, D.C.

Published By  
The American Society of Military Comptrollers  
Post Office Box 1747  
Washington 13, D.C.

60  
Maurice W. Harrell  
3945 Conn. Ave., N.W., Apt 407  
Washington 8, D.C.

